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By JOHN MADDOX TITLEY, M.D.

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J. Stewart Sculp.t

ELEPHANTIASIS OF THE SCROTUM.

LONDON. OCTOBER, 1829. PUBLISHED BY GEORGE HEBERT. 88. CHEAPSIDE.

A

PRACTICAL TREATISE

ON

DISEASES

OF THE

GENITALS OF THE MALE;

WITH

A PRELIMINARY ESSAY

ON THE

HISTORY, NATURE, AND GENERAL TREATMENT

OF

LUES VENEREA.

BY JOHN MADDOX TITLEY, M.D.

LONDON:
PRINTED FOR GEORGE HEBERT, 88, CHEAPSIDE.

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LONDON:
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TO

JAMES HAMILTON, M. D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, AND FORMERLY PHYSICIAN TO THE ROYAL INFIRMARY OF THAT CITY, &c. &c. &c.

MY DEAR SIR,

It is now nearly twenty years since I had the honour of dedicating to you an Inaugural Essay on the Nature and Utility of Purgative Medicines.

Since that period, extensive intercourse with diseases for twelve years within the tropics, and more limited experience during six years in this country, have confirmed to me the soundness and the value of your doctrines on the subject which I then treated, and have enhanced the great respect wherewith I regarded you as an accomplished master of medical science.

This opportunity, therefore, cannot be employed more to my satisfaction than in recording once again my sincere sense of an advantage which experience, and the continued voice of our profession at large, have taught me so highly to esteem.

I remain,

MY DEAR SIR,

Your obliged and faithful servant,

J. M. TITLEY.

EUSTON-GROVE, LONDON,
15*th October*, 1829.

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PRELIMINARY ESSAY

ON THE

HISTORY, NATURE, AND GENERAL TREATMENT,

OF

LUES VENEREA.

Recent observation has afforded so large an increase of knowledge concerning venereal diseases, that conclusions long taken for certain must now be abandoned, and the whole view either greatly modified or entirely changed. For my own part, availing myself of history, of the apparent course of nature, and of recent discoveries, I am much disposed to believe that Lues Venerea is neither a new, nor, according to any definition hitherto proposed, a specific disease.

I must here premise, that, in this essay, when speaking of Venereal Disease in the usual acceptation of those words, namely, disease ensuing upon sexual intercourse, and exhibiting primary affections of the genitals, with consecutive symptoms, eruptive and other, of the surfaces and interior parts of the body, I employ the term "Lues Venerea." When alluding particularly to the evidence of writers who lived in, or near, the age

of Columbus, that a certain new and formidable plague had originated in Europe at that period, I signify their idea of it by the name of "New Disease." When I speak of "Syphilis," I would be understood to mean that limited form of venereal affection, which, according to more recent doctrine, admits a peculiar kind of sore only, called Hunterian Chancre, as the primary symptom of a specific disease. This assignment of terms is confessedly arbitrary, but, by thus explaining, I hope to escape the censure of equivocal dealing with nomenclature, even in a case where it had been previously less vague and equivocal.

Had not the discovery of America, at the latter end of the fifteenth century, opened a new storehouse of nature, if I may so speak, whence new morbific causes might, by possibility, have been brought into action in Europe, I should have required evidence infinitely more complete and consistent than we have yet seen, even in the most partial compilations from contemporary documents, to persuade me that any plague had broken out in Europe, as the new disease is said to have appeared. Whatever may have been argued to the contrary, I feel quite sure that no disease, with which we are now acquainted, and which is propagable without art, can be shown to have originated in any part of Europe at, or after, any assignable period since the earliest records of medicine. Granted, that several have been first noticed or distinguished even very lately; but none have been shown, upon any plausible grounds, to have existed where they

had not existed before. America alone could account for such a phænomenon.

Before the æra alleged for the rise of the new disease, every nation of the Old World, from contiguity, traffic, war, and navigation, had so far communicated with each other, that all morbid affections, propagable in any natural way, must have been propagated, and must have continued, in every climate where they now continue, unless universally eradicated by a known counter-agent. Mankind have the same structure as they had of old; the same susceptibilities, the same appetites and lusts; and are, so far as regards our present subject, in the same condition of external circumstances: at least we neither know nor can reasonably presume to the contrary. Since, therefore, Lues Venerea does now exist continually by inartificial propagation in all the varieties of European climate, I conclude that it has existed there from the earliest periods, to a greater or less extent. And, when I call to mind how the Greek, Roman, and Arabian writers were betrayed into false theories, from their limited knowledge of the animal structure and functions; when I recollect how very difficult it is, not only in medicine, but in every department of science, either to prescribe, or afterwards to ascertain and to fix, terms in technical description; and further, when I consider that such terms have fluctuated in meaning, even among writers themselves, from writer to writer, from nation to nation, and from age to age, I hesitate to submit the evidence of history, and of the apparent laws

of nature, to the presumption that Lues Venerea was unknown to the ancients.

Advocates who have most strenuously contended for the recent origin of the disease in the Old World, have been constrained to admit that all the symptoms were severally known to the ancients; but it is denied that the same combination of symptoms was known. This, I might say, is to require more from antiquity than it can reasonably be supposed, or required, to produce; because there are scarcely any diseases, I doubt indeed if there be one, of which the order and concatenation of symptoms are less likely to have been obvious. Celsus (De Obsc. Part. Vit. lib. vi. cap. viii.) has the following apposite observations:—"Proxima sunt ea quæ ad partes obscœnas pertinent; quarum apud Græcos vocabula et tolerabilius se habent, et accepta jam usu sunt; cum in omni ferè medicorum volumine atque sermone jactentur; apud nos fœdiora verba ne consuetudine quidem aliqua verecundius loquentium commendata sunt; ut difficilis hæc explanatio sit, simul et pudorem et artis præcepta servantibus. Neque tamen ea res a scribendo me deterrere debuit; primum ut omnia, quæ salutaria accepi comprehenderem; dein quia in vulgus eorum curatio præcipue cognoscenda est, quæ invitissimus quisque alteri ostendit." "Next are the matters relating to the privy members. Among the Greeks the vocabulary of this subject is more endurable, and has been generally received into use, seeing that it is employed in almost all the writings and oral communications of their phy-

sicians. With us terms are more gross, and none of them are sanctioned by custom of those who observe delicacy in language; so that at once to fulfil the requisitions both of our science and of decency is a difficult task. However, I am not therefore to be deterred from writing; because, in the first place, I ought to include every point which I have understood to be conducive to the preservation of health, and, farther, because a method of treatment should be in every individual's hands, in a case where the parts affected are not exposed to inspection of another without extreme reluctance."

Is it not then rather to be inferred that the constitutional symptoms would be very rarely seen but in conjunction with or after disappearance of the symptoms of the genitals; and that the latter would only be recognised as a simultaneous portion of one almost mysterious disorder? And is it not equally probable that the descriptions of diseases, which professors avoided in their instructions, should be transmitted to us with much less accuracy than those which had been discriminated and pourtrayed by the accumulated sagacity and diligence of rival schools and successive ages? Even in these times, it would be difficult to propose many instances of specific diseases, which have been clearly made out and defined by one or two observers, however acute, or even by one or two generations. If I were required to give a striking example of the doubts which may be bequeathed to posterity, it would be most effectually supplied in the conflicting and actually indefinite descriptions of

venereal diseases, which we have in the various writers, from the time of Mr. Hunter to the present date. Should many of their works survive, with the great names to which they belong, there would surely be doubts whether they pointed to the same disease; doubts whether some common forms of lues venerea, well known to us, did exist in this age. And if certain of those works survived alone, it might almost be doubted whether we had any accurate knowledge but of the syphilitic virus, the mercurial specific, and the presence both of the virus and the antidote in the fluids of the lymphatic and sanguiferous vessels. So much do accurate definition and fidelity of description depend upon other circumstances than the mere fact of the phenomena of disease being constantly before us.

I am, however, not at all disposed to admit that the Father of medicine himself has not, as alleged by Leonicenus, &c., so clearly described lues venerea, as to make the remark of Celsus unnecessary to my argument; but it may receive something more, and more admirable, than strong confirmation, from the fact that Hippocrates, in the spirit of men of character in his age and country, never mentions the virile or feminine members by name, as far as I know, throughout the whole of his works. When speaking either of the female pudenda, or of the organs of generation of both sexes, he uses the words τὰ αἰδοῖα, the delicate term to which every respectable man of his time and nation was invariably restricted. The passages to which I here desire to draw particular attention, are in the seventh

section of the third book of Epidemics, or common diseases. After describing certain common diseases incident to the warm season, what follows is clearly severed from the preceding description by the interposition of these words: ἦσαν δὲ καὶ ἄλλοι πυρετοὶ περὶ ὧν γεγράψεται.—"And there were other febrile diseases which shall be described anon." He then proceeds:—Στόματα πολλοῖσιν αφθώδεα, ἑλκώδεα· ῥεύματα περὶ τὰ αἰδοῖα πολλά. ἑλκώματα. φύματα ἔξωθεν ἔσωθεν τὰ περὶ βουβῶνας, οφθαλμίαι ὑγραὶ, μακραὶ, χρόνιαι, μετὰ πόνων. επιφύσιες βλεφάρων ἔξωθεν ἔσωθεν, πολλῶν φθείροντες τὰς ὄψιας, ἃ σῦκα επονομάζουσιν, εφύετο δὲ καὶ επὶ τῶν ἄλλων ἑλκέων πολλὰ καὶ αἰδοίοισιν. ἄνθρακες πολλοὶ, κατὰ θέρος, καὶ ἄλλα ἃ σὴψ καλέεται. εκθύματα μεγάλα. ἕρπητες πολλοῖσιν μεγάλοι. This passage might, and I think should, be otherwise punctuated (as it appears to have been understood by Galen and others, and to be exhibited by the manuscripts), but though convinced that my argument would be strengthened by a just rectification of the text, I am content to take it with as little alteration from the printed form as the construction absolutely requires, and give the following translation of it, with perfect certainty, that no person who shall examine the original, together with the commentaries from Galen and others, will accuse me of perverting a letter. "Many have aphthæ and ulcers of the mouth. Considerable runnings from the pudenda. Ulcerations. Tumours external and internal about the groin. Humid ophthalmia, of

long continuance, with pains. Flesh like excrescences, called fici, of the palpebræ, both internal and external, which destroyed the vision of many. And moreover there arose many ulcers of other kinds, even upon the genitals. And there were many carbuncles during the warm season, and other sores which are called putridities. Large pustules. Many had herpes, (or ulcers that creep from part to part.)"

Hippocrates then changes his subject, and next remarks: Τὰ δὲ κατὰ κοιλίην πολλοῖσι πολλὰ καὶ βλαβερὰ συνέβαινε. "And many and severe diseases of the bowels occurred to many patients." So that the passage which I have cited is completely isolated, and must be taken to refer to one class or species of disease. I contend that we have here as full a description of Lues, including syphilis, as any one has ever collected from the writers upon the new disease. I will here give a description, which has been published as an abstract, from three of the authors on the new disease, Cumanus, Torella, and De Vigo. "Small pustules on the genitals, followed in a few days by violent pains in the arms, legs, and feet, attended with large pustules or ulcers, which were cured with difficulty, sometimes lasting a twelvemonth or more; the bones became affected with swellings; the hair fell off, the eyes were sometimes destroyed as well as the nose; the mouth and the throat were ulcerated; the uvula corroded; and, finally, the disease killed, rather by inducing some other complaint than by the mere force of the symptoms themselves, and

when it had once become confirmed a palliative cure only could be obtained." Leaving then to others to doubt, if not with me to be convinced, that the symptoms of affection of the bones here described, and the confirmed state of disease, which admitted only of palliation, were, as indeed Torella himself almost proves, owing to mercury, I ask whether this description, gathered from three out of some scores of authors, is one jot more characteristic of Lues Venerea, including syphilis, than the passage already cited from Hippocrates?

It has indeed been assumed, from a cursory examination of the controversy of Leonicenus, &c. concerning this passage, that Hippocrates speaks of a disease incident to spring or summer alone, which is utterly to misrepresent him, for he has, in the preceding paragraph of the section, the following: Πρωὶ δὲ τοῦ ἦρος, ἅμα τοῖσι γενομένοισι ψύχεσιν, ερυσιπέλατα πολλὰ, τοῖσι καὶ μετὰ πρόφασιος, τοῖσι δ'ού· κακοήθεα, πολλοὺς ἔκτειναν· πολλοὶ φάρυγγας επόνησαν· φωναὶ κακούμεναι· καῦσοι φρενιτικοί· στόματα αφθώδεα· αιδοίοις φύματα· οφθαλμίαι· ἄνθρακες. κοιλίαι ταραχώδες·—κ. τ. λ. "Before spring, while the cold season was still existing, there were many cases of erysipelas; some arising from known causes; others, and those malignant, from occult causes, were fatal to many. Many had disease of the fauces. Voices affected. Fevers with phrenitis. Aphthous mouths. Pustules of the genitals, ophthalmia, carbuncles, disorders of the abdomen, &c." This is but the same account

kept in the form of more compact memoranda, and shows clearly, when explained by, and compared with, the former passage, that the disease or diseases intended occurred all the year round, since it is plain to any one who will search the whole of that part of the section, that the year is divided into ψύχος and θέρος, into a cold and a warm season; and that what is in these portions described, was observable among the common diseases of both. I have not been able to see the observations of Hier. Cardanus, an author in Boerhaave's collection, who commented upon the Epidemics, but it would be worth while to know the manner in which he, who lived in the age of the panic, has considered these extracts. Perhaps I should add to the above that the ἄνθραξ of the Greeks has not the limited sense usually given to it, but means any crusty, eating, and running ulcer, and indeed is variously defined. Nor is it irrelevant to state, that both Torella and De Vigo give countenance to an opinion that contagion without coition would communicate the new disease, whence, if such authority be alleged for testimony to the modern Lues or Syphilis, I think Hippocrates has a reasonable claim to be ignorant that coition was ever a cause of Lues, considering his æra and school of medicine.

However, if this testimony of Hippocrates were wanting, we have most abundant records that venereal diseases were known in Europe before the period assigned to the new disease. Celsus enumerates, with great precision, various ulcers incident

to the genitals, some of which, I think, are manifestly such as we know to be venereal, and attended with general eruptions. And, as Dr. Mason Good, a most excellent authority so far, observes, "it appears to have been known to the world from an early age that acrimonious and poisonous materials are, at times, secreted by the genitals, capable of exciting local, and perhaps constitutional affections in those who expose themselves to such poisons by incontinent sexual intercourse." Salicetti of Piacenza, 1270, treats "de pustulis albis vel rubris et de milio et scissuris quæ fiunt in virgâ vel circa præputium propter coitum cum fœdâ muliere aut cum meretrice, aut ab aliâ causâ." Lanfranc of Milan, 1290, speaks of many kinds of ulcers of the genitals, and mentions one which may arise, "ex commissione cum fœdâ muliere quæ cum ægro talem habente morbum, de novo coierat." Bernard Gordon of Montpelier, 1300, notices like complaints, and says, that some of them arose from coition with a female "cujus matrix est immunda, plena sanie, aut virulentiâ." Guido de Cauliaco, Velascus de Taranta, and Peter de Argeleta of Bologna, all state the fact of the existence of such disease. Our countryman, John Arden, 1380, notices "contumacious ulcers" of the penis. Thomas Gascoign, Chancellor of Oxford, 1420, states, that he knew many men to die of a disease, gotten by connexion with women, which caused a putrefaction of the genital organs, and of the entire body, and that John of Gaunt died "ex tali putrefactione membrorum genitalium et corporis sui causatâ per

frequentationem mulierum." And it is especially worthy of remark, that Johannes Manardus of Ferrara, who treated of the New Disease in 1519, relates, that "the oldest writer who describes one much like it is Hugo Senensis, who mentions a young man, his patient, affected with pustules, hard tumors, ulcers, pains of the head and limbs that were more violent at night than by day;" to which Manardus adds, "so that this patient wanted only two very essential symptoms of the French disease, pustules of the genitals and upon the hairy scalp." It is, however, manifest that Hugo Senensis by no means authorises him to say that these symptoms were absent; when variola is described, we do not expressly state that the eruption extends to the genitals.

I will now proceed to a consideration of the early authors who treat of the New Disease, and shall here only advert to the earlier, because they who published their observations nearest to the time in question, are undoubtedly the best evidence in such a case; and succeeding testimonies must stand more on the ground of report, or, as in this matter especially appears, are more likely to have a mixture of after-thoughts with what arose in that period. Of the Italian medical authors very few, until 1500, and even for some years afterwards, dated the æra of the disease earlier than 1494, the year in which Charles of France invaded Naples; and many either assign the first appearance of it, or at least the greatest violence, to the year 1496, the summer of which was unusually hot. Of the

historians who wrote about that period, Sabellici, Bourdignè of Anjou, and Guicciardini, all concur in the dates of 1494 to 1496. Fulgosi gives 1492, and Infessura has stated that the Moors brought the disease from Africa in 1492, and that a Cardinal died of it at Rome in 1493. But it is probable Fulgosi may have taken Infessura's hint, and that Infessura was inclined to charge the infidels rather than the ecclesiastic with the shame of a complaint of which the vicious origin had now been remarked:—both the spirit of the age and the anxiety of men of all ages and professions to exculpate the leaders of their party support such a conjecture. The reigning pontiff, Alexander the Sixth, to whom Infessura was secretary, wrote a letter to Charles of France in 1494 to delay his journey on account of "a great and new plague" that raged at Rome.

It is, however, absurd to talk of the Moors; they were, as we know, Arabians who migrated after Mahomet's time, and the Crusaders would have brought any communicable disease of eastern or western Arab, Turk, or Moor, for they were notoriously unchaste, and even brutally licentious. As an instance in point, De Joinville (Histoire du Roy Sainct Loys) relates, that the French crusaders in Egypt, after the siege of Damietta, 1249, incurred all chance of such infection, for he says, "Les barons, chevaliers, et autres qui deussent avoir espergnè pour s'en secourir en lieu et en temps, se prindrent a faire grans banquets les ungs

aux autres en habondance de viandes delicieuses. Et le commun peuple se print a forcer et violer femmes et filles."—"The barons, knights, and others, who ought to have husbanded their resources for succour in proper time and place, betook themselves to making great banquets for one another, with profusion of delicious viands. And the common people set about forcing and violating women and girls."

To such as know the history of those expeditions I need not say, that whatever licentious morals could have brought away from any shore of the Mediterranean must have returned with the crusaders. We have besides quite as valid assurances that measles were unknown to the Greeks, and that scurvy originated about the æra of the new disease, as may be seen in Dr. Bateman's notices of Rubeola; and, with regard to scurvy, in some other book which I have seen, but do not remember at this moment by title. From Dr. Bateman's publication I transcribe the following admirable and apposite remarks. "Surely, then, the imperfection of the knowledge of the ancients respecting the nature of these eruptive fevers affords no just inference against their existence, while, on the contrary, the brief but repeated notices which they have transmitted to us, of eruptions resembling nothing that we are now acquainted with, except the contagious maladies in question, lead to the fair and legitimate conclusion, that the diseases of mankind, like their physical and moral constitution,

have not undergone any great and unaccountable change, and that the eruptive fevers have prevailed from the earliest ages."

I am induced to notice in this place a quotation from a letter of Peter Martyr, dated 1488, to Arius Lusitanus, Greek professor of Salamanca, to which Mr. Bacot, in a recent publication on Syphilis, has given great weight when treating the same point of controversy which I am now discussing. Both in the original essay in the Medical Gazette, and in the volume just published, the quotation is unfortunately inconstructible. I have not had an opportunity of seeing the original; but, however, the integrity of the text is of little consequence to my view of it: at the same time I may remark, there are some words which, as they now stand, are unintelligible. I have included these words in parentheses, and distinguished the corrections by italics:—" In peculiarem te nostræ tempestatis morbum, qui appellatione Hispanâ bubarum dicitur (ab Italis, morbus gallicus, medicorum elephantiasin alii, alii aliter appellant) incidisse precipitem, libero *ad* me *scribis* (scribes) pede. Lugubri autem elego calamitatem ærumnasque gemis tuas, articulorum impedimentum, internodiorum hebitudinem, *junctu-rarum* (jactuarium) omnium dolores esse proclamas, ulcerum et oris fœditatem superaddis." There is, in my opinion, a suspicious air in this mode of reply, reciting so minutely the detail of a correspondent's communication; and instances are not wanting of forgeries in such a shape, with the design of comprising the authority of two witnesses in one docu-

ment. But the date is manifestly either erroneous or false, because the Italians did not know the new disease by the appellation "French" till after Charles of France marched into Italy. To that event, and to that only, as far as I know, or can learn, do all coeval Italian writers, who explain the appellation "French," refer it. Besides, this date is incompatible with Infessura's and Pope Alexander's evidence; for it is absurd to suppose that a disease was called by any name in Italy in 1488, which they considered to have originated in Italy at a date of four to six years afterwards. It would be just as reasonable to insist that Bonaparte was unknown to the Pope and his secretary four years after his invasion of Italy was known to the Italians, as with Mr. Bacot at once to allege and to argue upon his quotations from Infessura, Alexander, and Peter Martyr.

From all these testimonies I do not hesitate to determine, that if any substantial cause existed for the panic, it appeared from 1494 to 1496. There seems indeed to have prevailed a very general opinion, about that period, corroborated by pretty common suffrage of after times, that this "new plague" was introduced into Italy from Spain, and into Spain by the adventurers who had returned, between 1493 and 1496, from the first, second, and third American voyages of Columbus, or that it was imported directly into Italy from America, without adverting to Spain. Those authors who say that the French invaders of the Neapolitan territory brought it with them from France, or from

the lepers of Monte Salvio, are so contradictory among themselves, that I do not wonder to find Guicciardini pronouncing that the French were unjustly reproached. I know moreover that later German authors (Meiner, Stumf, Stettler, and Sprengel) declare, that Germany knew the malady some months at least before the first return of Columbus, in 1493. But I am inclined to think, that the New Plague of Italy either never reached Germany at all, or in a very slight degree, or is not the disease then remarked, and that these authors only rest on cases of Lues Venerea, which the zeal of the times, animated by the new avenue of fame opened by the press, had at length discriminated and remarked with more attention; or perhaps it had been stimulated by a rumour from Rome, originating with Infessura's accusation of the Moors.

It seems to me, after having diligently examined the various authorities within my reach, that Father du Tertre, a man worthy of high credit, gives, in his general history of Saint Christopher, Guadaloupe, and Martinique, a clue sufficient to thread the labyrinth. He says that the loathsome distemper which the people of those countries call "Epian" is really the venereal disease, and in some sort hereditary in the natives, who not only contract it by venery, but also have it break out upon them spontaneously; and that, to his certain knowledge, there were Spanish soldiers who, when they returned to Spain from the first voyage of Columbus, were affected with that disease, and carried it with

them to Naples, where it was communicated by them to the French, and thence to Europe.

Now "Epian," "Pian," are the American names for Frambæsia Americana, of which the Africans have a variety called Yaws (if indeed it be a variety). A Spanish physician now in England, who resided several years in South America, and who was professionally attached to the court of Spain, informs me that this disease is prevalent over the whole of South America, and that the Spanish name for it is "Bubas." I can say from personal observation that it is still prevalent at Saint Christopher's, and that Lues Venerea exists there also, perfectly distinct, but mild in its symptoms, and of unfrequent occurrence. I never saw nor heard of a severe indigenous case of Lues there.

Whoever then will compare the earlier accounts of the New Disease with Dr. Mason Good's very just description of the usual symptoms of Frambæsia Americana or Yaws, will, I am persuaded, recognise much that belongs to that disorder, and not to Lues, in the descriptions of writers on the New Plague. Some of the very earliest contemporary authors, Leonicenus, Aquilanus, and Scanarolus, expressly refer the new disease to the before-mentioned carbunculi et putredines of Hippocrates; and we cannot be easily misled by that reference, since the eruptive ulcers of the old plague were known in the time of those authors by the name of carbuncles, and the ulcers of the Frambæsia Americana, which is, in my opinion, justly classed by Dr. Good with the Anthracia Pestis, or

old plague, are carbuncles of a congeneric character. Again, it is most distinctly alleged by several of the early writers that the new disease was contagious; and that no doubt of the fact may be entertained, they state having "frequently seen the disease without any symptoms about the genitals" (Montesaurus); that they knew "a great many instances of it breaking out upon girls who were virgins, and in old men whose sexual appetite had passed away" (Scanarolus). Ulrich de Hutten, who wrote in 1519, referring the origin of it expressly to Naples, says, "It is now become so much milder, it scarcely appears to be the same disease; for, at first, the ulcers resembled acorns both in their figure and size, they were prominent, rough, and discharged an abominable matter of such violent fœtor that the very smell was reckoned infectious. The colour of the pustules was between black and green." In this description, it appears to me that the dark green terminthus of Frambæsia Americana is very distinctly and decisively traced. He says, moreover, that "for the first seven years, or more, after this disease appeared in Germany, it used to seize even those who had no commerce with the infected, but in these later times is caught, for the most part, only by coition; that the ulcers are now small, and not very prominent nor hard." Fracastorius says, in 1530, that "after it broke out in Italy, some became affected without having had any commerce with the diseased, but the greater part caught it by contact;" and Petronius, who wrote in 1565, re-

cords that "when this disease first appeared, besides other cutaneous affections, the body, but more particularly the head, was scattered over with small ulcers resembling a Mulberry, which shape they still retain, and either white or red." In this description, what relates to the appearance of the mulberry exactly coincides with the terminthus or fungus of Frambæsia Americana, but Petronius is the only author who describes such a figure in his own times; and seems rather to imply that white or red fungi, such as those of Sivvens, were known to him. At all events it is undeniably clear, that these descriptions have nothing whatever to do with Lues Venerea or Syphilis. But it is necessary, to form a fair judgment, that the whole of the authors contained in Boerhaave's collection should be collated. From particular as well as general evidence of such collation, I think it will be acknowledged that the symptoms both of Frambæsia Americana, and Frambæsia Guinensis, and of Sivvens, are intermixed, especially in the earlier writers, with a description of every form of Lues Venerea with which we are now acquainted.

I must, however, caution the reader against relying too much on the account of Frambæsia and Sivvens, given by Dr. Adams in his work on Morbid Poisons. The solitary case of the former which he relates, was, in my opinion, either much modified by treatment, or, as I should rather infer, from the patient's account of its origin, altogether very questionable; at least it does by no means reach the character of the American species as I have

myself seen it. Dr. Mason Good has pourtrayed it very accurately. I do not believe the American Frambæsia to be ever propagated by effluvium, for I have often seen patients confined, whilst under cure, in one end of a room which was constantly frequented by healthy negroes and others who had never had the disease, and who were neither afraid of it nor caught it. Nor did I consider or find myself in any danger when near the sufferers. There is, nevertheless, a prevailing opinion, that a very subtle effluvium emanates from the sick, and in consequence of this notion patients are generally sent to secluded places, where intercourse with the healthy is cautiously prevented. I feel convinced, however, that intimate contact does not take place without much risk, and there cannot be a doubt that the "contagio" of the Italian writers had that signification, since they wrote in Latin, in which language the word is rarely used but in its literal sense, and since we find such expressions as that "the new disease was propagated by contagio, or even by the air," or "communicated by contagio; nay, some say by the breath." Whence, in this essay, I have limited the use of the term contagion to the same sense, while I employ the word infection to signify the idea of a poison operating locally and externally by insertion or absorption, and the word effluvium when I mean to represent disease communicated without contact.

The description of Sivvens by Dr. Adams is very imperfect. In the few cases which he actually saw, and upon which he chiefly relies, the most

striking feature of the disease, the red and protruding fungi, from which the popular appellations of Sivvens or Raspberries arose, were not present, while the testimony of many who had previously seen a vast number of patients proves that such fungi are essentially characteristic.

Lues Venerea and Frambæsia are perfectly distinct at this hour in the West Indies. It is, moreover, clear that the contagious nature of Frambæsia, as it appears in those islands, does not extend to these latitudes, for, under all the circumstances of intercourse between Africa and this country, or between the West Indies and this country, it has never been stated that, even during the height of the slave trade, any communication of Frambæsia to Great Britain has taken place. Indeed, if the congeneric character of the old plague and the Frambæsia be kept in mind, and that the old plague, as Dr. Mason Good has plainly shown, is very much limited by temperature, we shall scarcely wonder that Frambæsia should in like manner be confined to certain climates.

Upon the whole, then, I think it very reasonable to accept this mass of evidence upon an admission which, to a far greater extent than any other, arises from, and reconciles, most parts of it, namely, that Frambæsia Americana was the contagious disease which caused the panic of 1494, 1496. Whether it ever prevailed much, I leave in the doubt which the evidence inspires. It is clear that such a new disease might be known; that it was known; that it is described; and that, by some at least, the

panic is referred to it. The hot season of 1496 inclines me to an opinion that for a time, though brief, it might prevail to a greater or less extent in southern Europe. On the other hand, I have no doubt that Lues Venerea was not, in any of its forms, new to Europe at or near the æra in question, but has been known in the Old World from very early times.

It is a singular fact, that some of the early writers on the new disease confounded it with leprosy, elephantiasis, and other cutaneous affections. Aquilanus, 1498, says, "this disease is the same as the Elephantiasis described by Galen, Celsus, and Pliny." Leonicenus, 1497, differs from those who take it to be the Elephantiasis of the ancients, or the Saphati, or Pruna, or Carbo, or Ignis Persicus; in his opinion "it is a disease of the same kind with the pudendorum carbunculi et putredines of Hippocrates." Again, Montesaurus, 1498, contended the point with Leonicenus, not whether the disease was new, but to which of the two ancient descriptions it belonged; to the carbunculi of Hippocrates, or the saphati: Scanarolus likewise, a disciple of Leonicenus, espouses the doctrine of his preceptor against Montesaurus. I could add much more from the authors of this period in corroboration of the same fact, but enough to make it certain is already given.

In this place I had cited Mr. Becket's quotation from Gaddisden as further proof that leprosy and Lues were confounded; but in Mr. Bacot's essay I have met with a mode of treating that

quotation which has much surprised me. The author in question, after pronouncing his judgment, that "Mr. Carmichael seems to give implicit credit to Becket's assertions," thus disposes of John of Gaddisden. "Theodoric is copied largely by our countrymen Gilbertus Anglicanus, and John of Gaddisden, the latter of whom recommends the following extraordinary mode of cure to the female patient, who is directed to leap backwards down stairs. Such are the principal facts adduced by Mr. Becket in his first paper." I take the liberty of stating my opinion that such are not the principal facts adduced by Mr. Becket as regards John of Gaddisden. The passage which Mr. Becket quotes from the Rosa Anglica, where it may be found under the head of de infectione ex concubitû cum LEPROSO vel LEPROSA, is as follows: "If any one desire to preserve his privy member from all corruption, when he cohabits with a woman whom he happens to suspect of uncleanness, let him wash it with a mixture of vinegar and cold water, or with his own urine, inside or outside of the prepuce."

Now, it certainly appears from this passage that Leprosy is the disease which might be caught through the genitals by coition, and against which the preventive means are recommended. Leprosy, however, is communicable neither by contact nor coition, and therefore I think the obvious inference is, that Lues was known by John of Gaddisden in 1340. It is well known that under the generic term Lepra a variety of cutaneous affections was

formerly comprised, but I do not believe that any of these diseases were or are contagious. I have had the most ample opportunities of witnessing cases of the disease designated black leprosy (elephantiasis Arabica) in the West Indies, and I have never known or heard of a case of infection arising from connexion with a leprous woman; but, like some other diseases as little communicable by this medium, it may be conveyed by a nurse to the child whom she rears.

In confirmation of the opinion that black leprosy (a disease which was formerly very prevalent in England) is not contagious, I may allude to the experimental conviction of Schilling, Dr. T. Heberden, and Dr. Adams. Dr. Mason Good, on the other hand, says, in his Study of Medicine, "that all the medical writers, native as well as foreign, state that this disease is contagious in India and Arabia." But the observation of Mr. D. Johnson, of the Bengal establishment, in Dr. Good's next page, might have served to shake the united sentence of all those authorities; for he, from observation, attributes the disease to the operation of cold water, &c. on the hands and feet, and doubts whether the hereditary descent of certain trades and occupations may not be the sole cause of its appearing in successive generations, instead of a family taint. I do not, for reasons above produced, entirely concur with Mr. Johnson, but see in his remarks another added to very good authority, that the elephantiasis Arabica is in India, as possibly in Arabia, and certainly in Europe, a malady fre-

quently ingenerate from filth, deficient and bad food, and harassing exposure, but communicable only by descent perhaps, or by a nurse to the child whom she rears. In Europe, I am persuaded, few medical men, who practically know any thing about it, believe the disease ever to have been otherwise propagated.

I proceed to inquire whether Lues Venerea, or any form of it, can be so discriminated as to constitute a nosological species; and I wish it to be understood that in discussing this question, whether Lues Venerea, or any type of it, can be considered as a specific disease, I proceed upon the idea of a species, which prevails universally, and I think necessarily, in all the nosological arrangements of eruptive fevers, namely, that each has a distinct cause. Though in small-pox, measles, plague, &c. we have types of each varying considerably from each other, we consider all those types to be varieties and not species, because we know or believe them to be owing to one primary cause, but modified by the constitution of the patient, or by some secondary, supervening, or contingent cause.

In the practical part of this work, it will be seen that several kinds of primary venereal sores are distinguished, and respective modes of treatment prescribed. This is, however, nothing more than an useful expedient to direct attention towards some striking symptomatic feature with which certain practice has been supposed best to correspond. These specified patterns of sores are in truth only

the best substitutes we have for pathological criteria, and extend no further than to the first link of a disease. I have adopted them on limited, and perhaps I might say empirical grounds—not as applicable to discriminate the whole train of a venereal attack, or as indicating the operation of any ascertained pathological cause. Such sores are, in my judgment, of the same species as sores found in other parts of the body and originating in causes not venereal. They may be successfully treated on the same principles as we should apply in the treatment of ulcers in general, allowing something clearly to be due to the peculiar structure and functions of the parts concerned. So that we cannot sever these primary sores, or any of them, from association with ulcers of other parts and other causes. Even the advocates of mercury now admit that they may be healed on general principles of treatment—they only assert that a taint is left which will break out afterwards in secondary symptoms. But we have a step farther to go, which completely overturns the doctrine of a syphilitic ulcer or chancre. No form of primary sore yet described is any thing more than a pattern arbitrarily selected from an endless number and gradation of forms, so blended and confounded together that no two appearances can be delineated, between which experience does not present sores with more or fewer of the characteristics of either; so that it is impossible to fix a limit where one species ends and another begins. I have seen, and every experienced surgeon has seen, cases of callous ulcer, for instance,

which varied much from the Hunterian sore, and yet none ought to pronounce that they were not chancres, because many intervening forms had been seen which connected the standard sore with the variety. It could not be maintained that Mr. Hunter's description differed from them any farther than in maturity or full development. I have found some with even, and some with ragged edges—some with a very determinate and some with a very obscure exterior margin. Some with much callus on the superficial circuit and little or none in the base—some harder in the base, with a rim almost or quite soft. Moreover, ulcers of one kind, often as they proceed, vary their aspect so as to become distinctly referable to another kind, and it not unfrequently happens that primary sores of different species (according to our arbitrary distinctions) have existed at the same time in the same patient. A knowledge of such facts necessarily leads to the inference that varieties of constitution (fluctuating as it does even in the course of a few hours under treatment, or under the influence of in-artificial agents) do in truth shape the sore and transform it. These facts are, to me, quite irreconcileable with the idea of specific ulcers and specific poisons; and, at all events, though the specific distinction of primary ulcers, and even the need of a specific remedy were ever so well demonstrated, such affections are only one portion or link in a chain of many consecutive symptoms. We should indeed be able to reduce ulcers into species, but not to discriminate species

of Lues Venerea. It is therefore necessary to inquire how much farther we can advance.

Mr. Carmichael has stated, from his large experience, that each primary ulcer of four several characters which he has described, is, without exception, or with very rare and doubtful exception, followed by symptoms (when such ensue) of certain determinate types. Could I consider his arrangement to be founded on any thing more than a singular accident, or be sure that what he has observed in the consecutive symptoms of the Hunterian chancre did not depend upon the exhibition of mercury in that kind of disease alone; were it confirmed by general, or even by some consent of other practitioners, it might be entitled to weight; and I should say, that if it were to be completely established, we should have gained a step towards criteria for distinct treatment. More could scarcely be allowed, even if Mr. Carmichael's observations had been supported by universal suffrage; for I see not how a callous ulcer or a scaly eruption, or both connected in one disease, should determine any peculiar and specific cause.

I am fully warranted in supposing a singular accident in Mr. Carmichael's experience, or the other cause which I have mentioned, to have produced his conclusions, by the contradiction of them, which has without exception followed upon my inquiry, from the most intelligent and experienced surgeons of my acquaintance; by my own observation; and by the clear statements of an opposite result which have been made public from

the experience of the military medical officers. I know that attempts have been made to disparage such evidence; but no temperate advocate would pretend to doubt of the competency of those gentlemen to discriminate chancre; for they plainly accept Mr. Hunter's current description of it, and it is mere gratuitous presumption to insinuate that they were less able to understand that description or to apply it faithfully in examination and report than others are. Mr. Hennen and Mr. Hill have evinced, by reference to the minute classification of cutaneous eruptions by Doctors Willan and Bateman, that they may not be distrusted in ascertaining or communicating the precise characters of such phænomena. Nor should the remark of Mr. Guthrie be lost sight of, who says, "the regimental surgeon possesses advantages, as to ascertaining facts, which are not to be met with in any other walk of life. The persons affected are completely under his control; he can do what he pleases with them without restraint; and he has them under his observation for a number of years, certain that they cannot have a change of opinion, and act contrary to his will."

"Eruptions of the same nature and character," says Mr. Hennen, "have succeeded to the foul, indurated, excavated ulcer, and to the simple excoriation." He also testifies that, out of 105 cases, collected under the head of primary affections, there were nine of Hunterian chancre followed by eruptions, thus:—five tubercular; three exanthematous; one pustular. Mr. Hill says, "as far as

is consistent with my own observation, I have not remarked any particular description of ulcer to be followed uniformly or solely by any peculiar forms of eruption." He gives 239 cases treated without mercury. Of fifty-one possessing most of the characters said to be truly syphilitic, two were followed by ecthyma; one by tubercula Batemanii; one by aphtha. Of 188 of various other kinds of primary affection, four were followed by lichen; two by strophulus confertus; three by pustules; three by exanthemata; two by tubercula Batemanii; one by aphtha of the throat only.

"It appears," says Mr. Rose, "that most of the papular eruptions followed ulcers which were not very deep, and which healed without much difficulty. Several of them had a thickened but not a particularly indurated margin. I could not, however, discover any decidedly uniform character in such sores; and the sixteenth case I should have considered as a well marked instance of chancre."

Mr. Guthrie on this point remarks: "I do not then think that Mr. Carmichael's opinion, as to the secondary symptoms peculiar to the phagedænic and sloughing ulcer, receives any support from what occurred to the troops in Portugal, because it did not appear that either of them following sexual intercourse were dependent on the cause which produced the ulcer. Where many men had intercourse with the same woman, they have not all had the same complaint, although one of the ulcers so originating has become phagedænic or sloughed; neither has the same woman herself suffered from

this distemper; indeed the nature of an ulcer of either kind must, after a short time, effectually prevent such intercourse; and we often find that their peculiar characters only appear after the ulcer has existed for several days. I firmly believe also, that, in the greater number of cases of sloughing ulcer, where mercury is not given, no secondary symptoms would appear; and in those cases in which they did appear, I apprehend they would be equally dependent on the state of constitution, both as to the mode of cure and their distinctive characters. In other words, my observations lead me to conclude, that these ulcers do not depend upon a specific poison, but on the state of the constitution under particular excitement, and that, when secondary symptoms do occur, they are not dependent on the state of the ulcer; although I am ready to admit, that in a constitution where an ulcer will rapidly become phagedænic, the secondary symptoms, when they do occur, may be different, to a certain extent, from those that follow more simple ulcers in a healthier habit of body."

In the army medical report it is also asserted, that no peculiar forms of secondary symptoms were fairly traced to any peculiar primary sore.

It is quite impossible, with such a body of opposing evidence, to admit Mr. Carmichael's conclusions to have been founded on any thing more than a singular accident. There is no pretext for disputing his fidelity; and I look on his very able work with only one unpleasant feeling; that his great ability should have been, in this matter, to

all appearance misled. We have not, then, either in the primary ulcers, or in the eruption, or in the connexion of both, any clue to the division of lues venerea into species.

There is another powerful reason for determining that lues venerea ought not to be distributed into various species, as Mr. Carmichael has proposed. It might be granted that mercury is necessary to control symptoms in one class of the appearances which he has delineated, and exasperates them in another; that each requires a different mode of treatment; and yet not follow that the cause of one differs from the cause of another. The habit of the individuals may fairly be supposed to effect all the varieties of symptom, because those varieties seem, to me at least, to belong to differences of constitution, prevailing with striking constancy over every disease with which each patient is afflicted. I have no doubt that callous, varicose, fungous, and phagedænic characters would, and do, accrue by dint of individual constitution to other sores of different patients arising from similar causes. Nor have plague, small-pox, measles, scarlatina, and other eruptive diseases, in fact, a less variable complexion than lues; yet varieties of these diseases, even though requiring appropriate varieties of treatment, have not been made into species, or made an argument for a multiplicity of causes, nor can be, since, of several patients who take infection from the same single and known source, many will be variously affected. But though I might stand upon these analogical grounds, there is a fact related by

Mr. Evans, and corroborated by other testimony, which completely proves the truth of the doctrine, that one cause produces every type of lues, and that the differences of form arise from the differences of constitution. Mr. Evans says, that, while at the military hospitals of Valenciennes, the usual number of venereal ulcerations continued, he was frequently present at the stated examinations of the public women, and was always surprised at the small portion of disease existing among them. At one examination, no less than two hundred women of the lowest description (the most frequented by soldiers), were inspected, and not one case of disease was found. At the departmental hospital of Lille, to which place the public women were sent when diseased, Mr. Evans was equally struck with the few cases of ulceration presented, for, of upwards of one hundred female patients at the time he visited it, not more than three were found to have the elevated ulcer, and there was not one case of the indurated kind. Gonorrhœa, excoriations from want of cleanliness, warts, condylomata, and eruptive diseases composed the rest.

From these and other facts of a similar nature, Mr. Evans argues that the secretion from a sore of the same kind is not necessary to the production of the elevated ulcer, but that it may be caused by the application of a secretion, the infectious state of which is only to be known by its effects. I will go a step further and affirm, that it shows decisively that no form of primary ulceration in lues venerea depends upon any variety of infecting matter, or

at least that a supposition to the contrary is perfectly gratuitous; while against such a supposition I have had abundant testimony of patients whom I have had no reason to disbelieve, that from the same woman, and nearly at the same time, the Hunterian chancre has been derived by one individual, and the elevated or the superficial ulcer by another. I do not, however, distinctly remember a particular case of what I designate the phagedæno-gangrenous ulcer, said to have been derived in like manner from the same source as other sores. It will be seen that in treating of this particular kind of destructive disease, I have mentioned the generally prevailing opinion of its derivation from one district alone in this metropolis, which may be supposed to favour the opinion of a specific virus. But what, I may fairly ask, becomes of those persons who have communicated the disease? Is it not equally destructive with them? Or are we to suppose that a poison, which is of an exceedingly violent kind when propagated, does not affect the body engendering it?

The experiments which have been made by inoculation are so few in number, and altogether so inconclusive in their kind, that but little information can be derived from them. The result of these limited experiments, however, proves one and the same cause to have produced various effects, according to the constitution of the recipient. One thing is especially to be remarked in all these experiments, namely, that in no instance

has inoculation produced any secondary symptoms, except when the diseased body from which the matter was taken, living or dead, has been present to the inoculated person, when he was infected. Indeed, if I may be permitted to conjecture on the subject, I would say that, since primary ulcers, even when treated by the simplest means, are not, but in a small proportion, followed by secondary symptoms; since there are eruptive and other symptoms, which cannot, but by the history, be discriminated from venereal, and yet have not been preceded by any morbid affection of the genitals whatever; and since symptoms of this latter description have appeared where no sexual intercourse had previously taken place—from these facts the conjecture might perhaps be indulged in, that the eruptive and other symptoms are propagated, independently of the primary symptoms, by effluvium, to the inhalation of which the circumstances of sexual coition must sufficiently expose both parties.

Sir Astley Cooper, it would appear from his lectures, is of opinion that what are called secondary symptoms may be propagated independently of any primary affection; and in confirmation he relates the case of a gentleman and lady, both of whom were affected with sore throat three months after marriage, and three months subsequently with eruptions which were pronounced to be of a "venereal" kind. The gentleman had had a sore on the penis, which was healed by local applications,

four months before marriage; but after this period had had no primary symptom by which the complaint could have been communicated to his wife; so that, as Sir A. Cooper observes, if dependance can be placed on the report of the person, the case is decisively in favour of the doctrine that venereal disease is propagable by other means than the application of matter from a primary sore.

It must be confessed that this is a most difficult and delicate subject of inquiry, and requires close and extensive observation in order to substantiate it. It is, however, in my judgment, scarcely opposed by any well ascertained fact. No experiment yet made does on reflection assure me, that any eruptive fever, communicable without art, is, in any genus of animals, propagated otherwise than by effluvium.

If it were true, that mercury alone would cure any one of the types, while the rest were tractable without mercury, some might still presume that a specific remedy suggested a specific disease. This belief had, indeed, long been general; but later trial, illustrating and confirming the sentence of many early writers, has shown the contrary to be the truth. Every kind of venereal sore or symptom, unless where the constitution has been previously affected by mercury, is as completely under the control of treatment by general principles and other medicines as by mercury.

It is strange to reflect on the decisive tone of Mr. Hunter in advocating mercury, and to me quite wonderful that his work should have been so

much extolled. It would be impossible for me, had I any such despicable object, to detract from John Hunter's claims on the admiration of the profession; but surely I may be allowed to express my opinion that his treatise on Lues Venerea does not confer much lustre on his great name. I have always remarked, that they who adopted the views of Mr. Hunter on venereal disease, have been much entangled and embarrassed when endeavouring to explain or to defend them. As far as my judgment goes, the detail of experience in his own book justified him in no more than affirming that his lues venerea was curable in most cases by mercury; by no means that it would go on from bad to worse without mercury, or that, without it, the disease was incurable. Nor can any thing be more miserable than the fallacy of shifting his specific test at one time to the description of ulcer, and at another to the cure by mercury. His facts and consequences stand simply thus:—The lues venerea of my pattern yields only to mercury:—yet I have seen some cases which I could not discriminate from my pattern, which were cured without mercury:—therefore, these last cases were not lues venerea. It is to be regretted that Mr. Hunter did not urge his doubts, for he manifestly had doubts, instead of which they are so suppressed by zeal to make a system, that they are scarcely noticed among his decisions. Perhaps these objections to his doctrines might have been overborne as heretofore by the clamour of his followers, but that we have a stubborn fact to produce, sufficient to show

that he should have tried without mercury, and that then he would have taught more wisely: for we know, beyond controversy, that every form of venereal disease now can, and we may reasonably presume always could, be cured without mercury.

It may be stated most fairly as Mr. Hunter's principle, that Syphilis would go on from bad to worse unless mercury were exhibited; and, doing them no injustice, I say that almost all his followers, except Mr. Abernethy, have taken that position, without any of the hesitation which Mr. Hunter himself betrays to a careful examiner of his work. I cannot find that any one of more recent times has so just a claim to the first opposing of the unqualified exhibition of mercury as Dr. Clutterbuck. In a pamphlet, published in 1799, entitled "Remarks on some of the Opinions of the late John Hunter," he shows the possibility of curing many forms of venereal disease not only without mercury, but without medicine of any kind. "I have seen cases," says he, "which induce me to believe that the venereal disease, in some of its stages, may yet get well without mercury, or any other remedy." It remained, however, for the army surgeons fully to prove the truth of this opinion, by experiments conducted on a far more extensive scale than could possibly occur in civil life, and under circumstances far more favourable for observation.

During the late Peninsular war, the medical officers of the British army were led to remark that the natives of Portugal never regarded with any alarm primary venereal ulcers, but left them en-

tirely to nature, and that they nevertheless got well. Of these gentlemen, Mr. Fergusson was the first who published an account of what he had seen. "Syphilis," he states, "has excited much interest and attention in this country (Portugal) on the part of all British medical observers, no less from its dreadful ravages amongst their own countrymen, than from its comparatively milder phenomena amongst the inhabitants of the country."

"In the British army, it is probable that more men have sustained the most melancholy of all mutilations, during the four years that it has been in Portugal, through this disease, than the registers of all the hospitals in England could produce for the last century; while venereal ulceration has not only been more intractable to the operation of mercury than under similar circumstances at home, but the constitution, while strongly under the influence of the remedy, has become affected with the secondary symptoms in a proportion that could not have been expected. With the natives, on the contrary, the disease is very mild, curable for the most part by topical treatment alone, or wearing itself out when received into the constitution, after running a certain course (not always a very destructive one) without the use of any adequate mercurial remedy."

"I have now been upwards of two years," he afterwards writes, "at the head of their hospital department, and I can declare that it never occurred to me, amongst all the venereal patients whom in that time I have seen pass through the

hospitals, to meet a single one under the influence of mercury, except in those cases wherein I myself have personally superintended its administration. They go out cured by topical remedies alone; and I have lived long enough amongst them to ascertain that their return to hospital under such circumstances for secondary symptoms, is far from an universal or even a frequent occurrence."

"To make this understood, I shall take the case before me, as verified this day by myself and staff-surgeon Jebb, and exhibit the state of the disease at the hospital from whence I now write. The venereal list amounts to forty; they had all been several weeks in the hospital previous to my arrival, and two of them only were taking mercury in an alterative form, for a supposed affection of the bones; the rest being only primarily affected with ulcers and buboes, or secondarily with ulcers in the throat, were, with only one exception, doing perfectly well from topical remedies alone; quite as well certainly as an equal number of patients under the most favourable circumstances of a mercurial course for an equal number of weeks, could be supposed to do in an English hospital; and all will soon be discharged apparently cured, without having had further recourse to any mercurial remedy, unless my longer residence here enables me to enforce its use."

"I ought here to explain that none of the ulcers are such trifling cases of chancre as we have seen at home, which can often be dried up with a piece of lint; nor even such as an English soldier would

run with in affright to seek the succour of his surgeon. To these the Portuguese soldier pays no attention whatever; he does not consider them to be a hindrance to him in any manner, and I have seen him turn out for duty with ulcers which made me shudder to look at, though both he and his medical attendant considered them as nothing. But they are large, extensive ulcerations (for which two of them have suffered amputation of the prepuce) that must have incommoded him in walking, and caused great inconvenience previous to his being taken into the hospital."

"In the military hospitals," he adds, "I know that the cure of primary symptoms is generally trusted to topical remedies; but in private practice I believe it is common to combine with them the use of the antisyphilitic woods in decoction; reserving the use of mercury as above, till the disease shows itself in the last order of parts, its last citadel, the bones, when a ridiculously insignificant quantity of mercury, generally of calomel, along with Dover's powder, guaiacum, warm baths, and other sudorifics, is given to complete the cure."

"Dreadful examples of exfoliation and loss of parts no doubt sometimes occur; but these, though they powerfully impress the feelings of strangers, by appearing without scruple in the streets of great towns, and in the ordinary concerns of life, by no means constitute a large proportion of the affected; on the contrary, the affection of the bones is often so slight, that were it not that it could be traced through the preceding stages, and that the noctur-

nal paroxysm of pain is distinctly marked, it might be classed, treated, and cured as Rheumatism, with sudorifics alone. Its appearance in the throat, where it shows itself when the constitution is tainted, according to the same rule that it does with us, excites no greater alarm than when it is confined to the first order of parts. They consider it as an insignificant local disease, and waiting for the grand symptoms in the bones, attack it topically with mercurial apozems, or stimulating mercurial gargles, and often actually dislodge it with the same facility that they cure original chancres."

The late Mr. Rose had the most ample opportunities of witnessing the little attention paid to the venereal disease in its earlier stages, both by the Portuguese and Spaniards. This gentleman was able to trace some of the natives of those countries in perfect health for two or three years after sores which he had supposed to be venereal had been healed without mercury. A few similar instances came under his observation amongst the British soldiers, where the use of mercury was interrupted at early periods by movements of the army or other causes, and was not afterwards resumed. "I have often," says Mr. Rose, "wondered, that in not one of these any ill effects ensued; but I could only infer that my opinion of the nature of the disease had been erroneous, although, in the cases to which I allude, it had by no means been hastily formed." Many of the medical officers of the German regiments in the British service refused to prescribe mercury to their men, from a knowledge that it was unnecessary. Dr. Banks likewise, who had served

in the Mediterranean, assured Mr. Rose, that the surgeon of one of our foreign regiments, to which he was himself attached, used no mercury for several years in venereal complaints, and he believes that secondary symptoms did not occur except where that medicine was employed. Influenced by these favorable representations, as well as by his own observation, Mr. Rose was induced to make trial of the non-mercurial treatment in the hospital of the Coldstream regiment of Guards. He succeeded, during a year and three quarters, in curing all the ulcers on the genitals which he met with, together with the constitutional symptoms to which they gave rise, without the exhibition of mercury.

In the same volume of the Medico-chirurgical Transactions which contains Mr. Rose's essay, is to be found a communication on the same subject, by Mr. Guthrie, from which I extract the following:

"During the last eighteen months, in the York hospital, Chelsea, Mr. Dease, Dr. Arthur, Dr. Gordon, and myself, have been in the habit of treating all cases of ulcers on the penis, whatever form or appearance they might have, by simple, mild means, that is, by dry lint, or ointment or lotions for the most part not containing mercury, in order to obviate the objection that might be made to the application of it in any form; and of near one hundred cases which have been treated in this manner, all the ulcers healed without the use of mercury. The primary sores were of every description, from the superficial ulcer of the prepuce and glans, to the

raised ulcer of the prepuce, the excavated ulcer of the glans, and the irritable and sloughing ulcer of these parts. Since Mr. Rose of the Guards began to treat his people without mercury, and the practice was adopted at the York hospital, it has been followed at several of the hospital stations, at Dover, Chatham, and Edinburgh, and in different regiments at home and abroad, especially the fifty-seventh, and the staff corps of cavalry in France. From these hospitals I have seen the reports of near 400 cases more, which have been treated with the same result, as far as regards the cure of the primary ulcers. Each ulcer appears to have run a certain course, which as to extent was much the same as in one of the same appearance where mercury was supposed to be necessary; and at an indefinite period of time to have taken on a healing action, and in the greater number of instances skinned over rapidly, leaving a mark or depression showing loss of substance."

"With us, where the ulcer had the characteristic appearances of chancre, dry lint alone was generally applied to it; where these signs were less prominent, a variety of applications were used; but there were a great number of sores, both raised and excavated, on which no application made the least favourable impression for many weeks. They did, however, yield at last to simple means, after remaining for a considerable time nearly in the same state, several of them having become sores of a large size previous to, or in the first days after their admission."

" If they were ulcers without any very marked appearance, and did not amend in the first fortnight or three weeks, they generally remained for five or seven weeks longer; and the only difference in this respect, between them and the raised ulcer of the prepuce, was, that this often remained for a longer period, and that ulcers possessing the true characters of chancre required in general a still longer period for their cure, that is, from six, eight, to ten, twenty, and even in one case twenty-six weeks, healing up and ulcerating again on a hardened base."

" Those that required the greatest length of time had nothing particular in their appearance that could lead us to distinguish them from others of the same kind that were healed in a shorter period; neither were any of these ulcers followed by a greater number of buboes, nor did they suppurate more frequently than in the same number of cases treated with mercury; on the contrary, the ulcers were not so frequently, on the average, followed by them, neither did they so often suppurate; but this may also be attributed to the antiphlogistic means employed, both generally and locally, for their relief."

" In the inflammatory stage, attended by itching, scabbing, and ulceration, they were treated, for the most part, by antiphlogistic and mild remedies; in the latter stage, when the ulcers were indolent, whether raised or excavated, by gentle stimulants."

" The duration of these stages is very different, is often increased by caustic and irritating applica-

tions, and is much influenced by surgical discrimination in the local treatment."

"The last or indolent stage often continues for a great length of time, especially in the excavated chancre, and raised ulcer of the prepuce; and it appears to me that in these particular cases a gentle course of mercury, so as slightly to affect the gums, will materially shorten the duration of it, although in others it is occasionally of no service."

"As great a length of time has elapsed in many of these cases without the occurrence of secondary symptoms, as is considered satisfactory where mercury has been used, viz. from six to eighteen months."

From all this Mr. Guthrie concludes that "every sore, of whatever description it may be, will heal without its use (mercury), provided sufficient time be granted, the constitution be good, the patient regular in his mode of living, and that attention be paid to cleanliness and simple dressing, and to keep the patient in a state of quietude."

"The question of time," he observes, "is very important, for I have every reason to be certain, from former experience, that almost all these protracted cases would have been cured in one half or even one third of the time, if a moderate course of mercury had been resorted to after common applications had been found to fail; and I have every reason to think, from the treatment of other cases, that the duration of many of them might also have been shortened by the regular exhibition of cathartic medicines combined with sudorifics."

" Secondary symptoms (and I exclude trifling pains, eruptions, or sore throats, that have disappeared in a few days), have seldom followed the cure of these ulcers without mercury, and they have, upon the whole, more frequently followed the raised ulcer of the prepuce than the true characteristic chancre of syphilis, affecting the glans penis."

" The secondary symptoms in the cases alluded to, amounting to one tenth of the whole, and which were treated on the antiphlogistic plan, have hitherto been nearly confined to the first order of parts, that is, the bones have in two cases only been attacked, and they have equally been cured without mercury."

" Although the secondary symptoms do for the most part yield to simple remedies, such as venesection, sudorifics, the warm-bath, sarsaparilla, &c. without much loss of time, that is, in the course of from one to four and six months; yet, as in the primary ulcers, a gentle course of mercury will frequently expedite, and in particular persons and states of constitutions is necessary to effect, a cure; and a repetition of it will even, in some cases, be requisite to render it permanent."

" Whether an insufficient course of mercury is more productive of secondary symptoms than no mercury at all, I cannot say; but it appears to me that it is only where mercury has been persisted in after it has evidently ceased to do good, when it disagrees with the constitution, or when it is exhibited at an improper period, or very irregularly,

the patient having been exposed to wet and cold, that it produces those symptoms usually supposed to depend upon it."

Dr. Thomson says " in the want of an accurate diagnostic symptom between syphilitic chancre and ordinary ulceration, and often also from the situation of a patient upon his first applying to me rendering it improper for him to undergo a course of mercury, I had for many years frequently been induced to treat primary venereal sores with simple local remedies The great number of these sores which disappeared under this treatment, some with and others without the formation of bubo, and many of these possessing all the characteristics usually attributed to syphilitic chancre, rendered me extremely desirous to ascertain whether there be indeed any primary venereal sores which are not capable of being healed without the use of mercury.

" An opportunity for bringing this matter to the test of public experiment has been afforded me in the practice of the consolidated Depot hospital in Edinburgh Castle, to the charge of which I was appointed in March, 1816.

" In this hospital, open to the inspection of all the medical military officers attending the university, I have, since that period, carefully abstained from the employment of mercury, not only in the treatment of secondary, but also in that of primary symptoms of syphilis, and have found that chancre and bubo have in every instance disappeared under an antiphlogistic regimen, rest in the horizontal position,

and mild local applications, as speedily as I had ever seen them disappear in similar cases in which mercury was employed.

" Bubo in one or both groins, sometimes suppurating, and in other instances disappearing by resolution, has occurred in about one fourth of those affected with chancre; but in none of the chancres or buboes which I have seen treated without mercury has any disposition to gangrenous inflammation or phagedenic ulceration ever manifested itself, occurrences which are so common in the treatment of these affections under the most careful employment of mercury.

" Of the cases which I have seen cured without mercury, the number in which constitutional symptoms have supervened has not exceeded one in ten; and the only forms of these symptoms which have presented themselves are ulcerations of the throat and cutaneous eruptions, sometimes accompanied by inflammation of the eyes.

" Hitherto I have had no opportunity of observing among patients treated for the primary symptoms without mercury, any of those deep or foul ulcers of the skin, of the throat, of the mouth and nose, or of the painful affections of the bones, which are stated, by every writer on syphilis, as the genuine products of that disease.

" The ulcerations of the throat have been few in number, and generally accompanied with cutaneous eruptions; they have had an aphthous appearance, and have sometimes been attended with aphthæ of the inside of the mouth, enlargement of

the tonsils, and swelling of the lymphatic glands of the neck. The cutaneous affections which have occurred have been, in several cases, a reddish mottled efflorescence of the skin resembling roseola, in others papular, pustular, scaly, or tubercular eruptions. These secondary symptoms have usually appeared in cases where the primary sores had been long in healing, and where they had left behind them indurated cicatrices. The time in which they have generally occurred has varied from four to twelve weeks after the appearance of the primary ulcer.

"The affections of the throat have been slight in comparison with those which usually take place in venereal cases after the use of mercury. The cutaneous eruptions have been chronic in their nature, and have all, as well as the sore throats and inflammations of the eye, gradually, though sometimes slowly, disappeared without the use of mercury, and without seeming to have left any injurious effects behind them."

In a statement by Mr. Hennen, he says, "that these sores (at least all of them that hitherto have appeared in the military hospitals here)," (Edinburgh) "and also that the species which Mr. John Hunter has designated as the true syphilitic sore, heal without the employment of any other means but rest, abstinence, cleanliness, &c., is perfectly demonstrable, and is daily to be seen in the wards at the Castle and Queensbury-house appropriated to such cases.

"In primary sores of a complicated nature, the

non-mercurial plan has been as strikingly useful as in the more simple. In phimosis, with clustering sores on the point of the prepuce, and concealed ulceration of the glans, with hardened edges, where no irritating substance has been employed to occasion them, the success has been uniform. The livid chancre of Mr. Carmichael has been treated with equal success. In fine, every thing I have seen of the practice confirms me in the possibility of healing primary sores on the genitals, of whatever description they may be, without the employment of mercury, and I have met with nothing to make me question the propriety of making the trial. Of some hundred cases, none have resisted hitherto.

"That ulcerations in the throat, cutaneous eruptions, and a combination of both, coupled in some cases with iritis, have disappeared under the same treatment is equally certain.

"Secondary symptoms occur more frequently, and appear at an earlier and more determinate period, than when mercury has been used; but they, in many cases, have gone off as soon; never proceeding from bad to worse, or from one succession of parts to another, in unabated violence; on the contrary, they by no means exhibit the same violent and unrelenting symptoms which we have observed in many instances where mercury has been used; the eruptions have not run into ulceration; they have not formed into large scales or extensive blotches; nor have the bones

of the nose, or of other parts, been in any instance affected with caries.

"Some of these eruptions have been more obstinate than others, and have required a treatment of several weeks with decoction of sarsaparilla, antimonials, the warm bath, &c., before they have disappeared. But I have not seen the general health more seriously affected in the cases under cure without mercury, than it has been when that remedy has been used. On the contrary, I am inclined to think that it has suffered less."

"The local applications to some few of these eruptions have been the ungt. hydrargr. nitrat.; the ungt. picis, or a mixture of equal parts of both, but in no instance has the most remote approach been made towards affecting the constitution with the mercury contained in the first composition. The local applications to the primary sores which have preceded these eruptions, have been the black wash of calomel and lime-water, saturnine lotions, cupreous solutions, and the ungt. resinosum."

"I have not had occasion to see a single instance in which the bones of the nose have been affected; some cases of pains and swellings of those of the cranium and the extremities have been met with, but, except in two, I have not myself seen any nodes which could be regarded as unequivocally syphilitic. One of these has yielded to blisters and sarsaparilla, as many of the anomalous tumors had done before; the other in which the guaiacum and sudorifics had been employed without effect, but in which the sarsaparilla and blisters had not been

tried, has been treated with mercury, and has also disappeared.

"Of 105 primary sores of all descriptions, the healing was effected at different periods, from five days to eighty-five. The general period was four weeks, and this whether the sores possessed the Hunterian characteristics or not. In one obstinate anomalous case mercury was employed and succeeded. Of thirty buboes, twenty-one were absorbed at different periods, from five to forty-five days, and nine suppurated and healed up from thirty to a hundred and thirty days after their opening. Of eleven cases of venereal eruptions, seven occurred in the form of acne, three in that of roseola, and one in that of impetigo; the two first generally terminated in desquamation. The period of their occurrence after the primary sores was from three weeks to four months; the period of cure varied from eight days to six weeks, and some are still under cure."

"Enough," says Mr. Hennen, "has already been proved to demonstrate that the bounds within which the use of mercury has been confined by Mr. Hunter, and by many eminent men since his day, may be still more curtailed, and that we may, in a number of these cases, defer, or limit, or altogether omit, the employment of that mineral. To the phthisical, to the scrofulous, to the maniacally disposed, the fact is invaluable."

The plan of treatment without mercury having been extended by degrees to the military stations in England, Europe, and America, under the

sanction and direction of the present inspector-general of the medical department of the army (Sir James Macgrigor), the result has been a collection of reports connected with this subject, detailing the cases of nearly 2000 venereal patients, whose symptoms, both primary and secondary, had been so treated. From this mass of information certain conclusions were drawn, which were afterwards transmitted in a circular letter to the surgeons of regiments for their information and guidance.

From this it appears, that between the months of December 1816 and 1817, 1940 cases of syphilis had been treated without mercury, of which number 96 had secondary symptoms of various sorts. Of these ninety-six patients twelve were afterwards subjected to mercurial treatment, chiefly for reasons of expedience rather than necessity; and even in these it was found that alterative doses of mercury were sufficient to effect a cure with several of them. Of the whole number of primary sores, sixty-five were cured finally with mercury, in consequence either of the slow progress they had previously made, or from their evincing a disposition to spread; though, at the same time, we are informed that the non-mercurial practice, both in the primary and secondary forms of the disease, *generally* occupied less time than where mercury was employed.

In the same period of time, 2827 men, with ulcerations of the penis, were treated with mercury, and of these only fifty-one had secondary symptoms; but these last appear to have been extremely

severe, and more intractable than when mercury had not been used for the primary sore, so that two men were obliged to be discharged the service in consequence of the injury sustained by their constitutions.

Having now produced the evidence of our military surgeons, to whom the credit of establishing, in this kingdom, the plan of treatment without mercury is chiefly due, I shall support their conclusions by some powerful corroborations from practitioners of other countries.

An interesting document has lately been published in Sweden upon the subject of the comparative frequency of secondary symptoms of syphilis, after various modes of treatment, which furnishes results somewhat different from the foregoing, but much in favour of the non-mercurial practice.

It appears, that, during five years, no less than 16,985 venereal patients were treated in the hospitals of that country. Of this number thirty-nine and a half per cent. were trusted solely to strict dietetic rules, and six weeks were generally found sufficient for the cures, if the symptoms were not very severe: secondary symptoms happened in the proportion of seven and a half per cent. Local and other modes of treatment were ordered for five and a half per cent., and of these, seven per cent. had after symptoms.

The mercurial treatment was adopted in forty-nine and one-eighth per cent. Of cases of secondary symptoms there were fourteen per cent. The fumi-

gatory treatment by cinnabar was employed in six and a fourth per cent.: the relapses were as twenty-two to the hundred.

A line of practice very similar to that employed in the British military hospitals is adopted by M. Fricke in the venereal cases admitted into the hospital at Hamburgh. Every patient is bled to the amount of from six to twelve ounces, and the operation is repeated if necessary. About half a dram of sulphate of magnesia is then given every three hours, and continued until repeated evacuations are produced. If the bowels afterwards become constipated, or the ulcers heal slowly, the use of the same remedy is renewed. As an external application to the chancres, Goulard water, or two grains of sulphate of zinc, in six ounces of distilled water, is employed. When the size of the sore is much diminished, and it is no longer painful, lime-water is used. If either of these lotions cause pain or inflammation, it is to be still farther diluted.

Buboes are first treated by compression, and, if resolution cannot be promoted, they are opened with a bistoury, and afterwards dressed with dry lint. Condylomatous tumours are removed by the knife, or cauterized, and the wound dressed with the same lotion as for the chancres. The patients are kept upon very low diet, consisting of vegetables, bread, and "soupe à l'eau," twice a-day. If at the end of a few days the symptoms are not alleviated, a few doses of mercury, in small quantities, are given, and are found sufficient to effect a cure.

The results obtained by this mode of practice

are highly satisfactory. Chancres and buboes are speedily cured, and the cicatrices are by no means so evident as when mercury has been employed. Chancres, from three to four lines in diameter, are generally cured, in female patients, in from one to three weeks. Rather a longer time is required in male patients. M. Fricke, who has the advantage of retaining patients thus treated under his observation, has not yet observed any secondary symptoms.

Now, from the foregoing quotations, I at present desire only to maintain the fact, that every description of venereal disease may be cured without mercury as certainly as by the aid of that medicine. The question, whether either mode of treatment is to be preferred on any other ground than that of certainty, remains for subsequent consideration. I only insist upon this body of experimental documents as entitling me to hold the opinion that mercury is not exclusively an anti-venereal specific.

Taking the British and Swedish reports, there are, in round numbers, 8500 cases numerically vouched for, in which other medicines than mercury, or mere regimen, effected a restoration of health; and these were not selected individually as less severe or more promising specimens of disease, but occurred for a given length of time, in given places and establishments, including every example of venereal sore or symptom that could possibly happen. Since, therefore, the different practitioners who conducted these experiments all knew the modern Syphilis, as a matter of such notorious

description must needs be known, it is to be granted that a sufficient portion of the primary and secondary symptoms thus in every instance cured were syphilitic, and that mercury is neither a necessary, nor in any sense a specific remedy for any venereal disease. So clear is this fact, that I would not stay to consider the extraordinary hesitation of some in receiving it, were I not desirous expressly to combat the objections of Mr. Charles Bell; to whose paper, in the fifth number of his Surgical Observations, I now particularly advert. He there speaks with an earnestness of zeal, which under his impressions I can but honour; yet, feeling myself quite as sincerely desirous that our profession may never be abused to tamper with the health of the community on any extravagant theories, or insufficient experiments, I do not hesitate to oppose the tendency of his doctrines. It is indeed impossible to conceive how Mr. Bell's reasonings can, in the slightest degree, alter the body of evidence which the military surgeons have adduced. We cannot presume to doubt their competency to judge of the facts to which they speak; nor can we suppose any want of prudence or proper caution in a body of practitioners amenable, even to the extent of fame and fortune, to the scrutiny and judgment of a public board, and connected with a system of graduated superintendence and responsibility. It is really absurd to adduce, by way of opposition, cases of old hospital hacks, who, in every instance, for what Mr. Bell says to the contrary, and on obvious grounds of

almost indubitable conjecture, had been thoroughly vitiated by mercury before they came into his hands. The military surgeons will not maintain that such patients, whose subsequent mode of life had, in all probability, confirmed the depravity of constitution induced by mercury, were fair subjects of a method which has been found applicable to fresh infections, or to the cases of men who, like soldiers, are by exercise, and comparative regularity of life, recovered from the constitutional effects of the presumed specific. I at least do not yet maintain, on the authority of the military experiments, that venereal, in conjunction with mercurial affection can be trusted to remedies which have been uniformly successful in simple venereal attacks. That a course of mercury, unless afterwards counteracted by continued regimen, does leave the constitution impaired or vitiated, is scarcely to be doubted. How then can we admit that such cases as the following, produced by Mr. Bell, are to shake the evidence of the military surgeons, or to make us in any degree fearful of the general principle which it establishes? 1. "Penis much mutilated in consequence of former chancres." 3. "Ulcer which has destroyed the septum nasi," &c. "This has been a woman remarkable on the town; but she affirms, that for years she has not been in danger of infection." 4. "Ulcer narrow, deep, and foul—of the cheek." 5. "Soft palate destroyed," &c. 7. "J. Whitbread, who, after eleven years (and he made solemn asseverations that in all that time he had not been in the way of infection),

lost his palate and a portion of the upper jaw, and who was saved by a course of mercury." 8. "Philip Warren, who lost the bones of the face and died with sloughing of the parts; to whom mercury was not administered." 9. "A mulatto, who has lost the alveolar process obviously by mercury." The three remaining examples are from private practice. 2. "A gentleman in the army received the infection at Malta, and travelled across Italy and France without taking mercury. There is in the groin an ulcer of the size of my hand." 6. "The nose destroyed by ulceration, and the ulcer is still active on the cheek. The lips are separated from the alveoli. Within the cavities of the face the bones are carious. This gentleman still clings to the hope of existence." Mr. Bell does not say whether he was cured or not. 10. "A young gentleman from the army in France, who assures me that he has neither had syphilis nor its antidote to injure his constitution, and who has an exfoliation of the alveolar and palatine processes of the upper jaw, &c." with which &c. the case is concluded.

Of these examples I have quoted enough to show that in all the hospital cases mercury may almost indubitably be conjectured to have been employed before Mr. Bell had to do with them, for they were all second attacks, or exhibited secondary symptoms. And I will further remark, that not one among them can be supposed to have continued under his inspection after their sores were healed. In the sixth example the previous

use of mercury may be as surely conjectured. The tenth, in fact, proves nothing. Of the second, I believe that, if it were a primary sore, and the patient was free from suspicion of having previously undergone a course of mercury, he might have been cured without a grain.

If any one with an unprejudiced mind fairly contrasts these few and incomplete cases with the statements of the military reports, I feel confident he will concur with me in saying that the cases do not bear in the slightest degree upon the question whether venereal disease ought to be treated by mercury or not, or disprove the assertion that all simple venereal affections may be cured without it. To any thing from Mr. Bell I should attend with the most favourable disposition which it is possible to entertain toward a man most justly distinguished; but because I know that such feeling towards him prevails every where most deservedly, I have conscientiously and fairly combated the tendency of his paper as freely as he impugns the tendency of the tracts published by the military surgeons.

I conclude that no type of Lues Venerea now known can be proved or justly presumed to have been unknown to the earliest ages; historical evidence is against such a decision; and no symptomatic criterion between modern syphilis and various other venereal affections (followed by secondary symptoms) now known and included in the new plague of 1494—1496, has yet been demonstrated. And having moreover shown that

mercury is in no sense a specific for any venereal disease, I maintain farther, that Lues is not a specific disease, inasmuch as its probable cause cannot be separated by any sure distinction from the cause of those affections described under the denomination of pseudo-syphilis, and which have been believed to be produced independent of sexual intercourse.

Having thus demonstrated that Lues Venerea has not been shown to be either a new or a specific disease, but that it must be regarded as nosologically undistinguishable, in cause and principle, from those affections which have recently been called by the name of pseudo-syphilis, I might perhaps be asked what would be gained by such a conclusion if it were admitted. I reply, truth at least; which in such matters is of vital importance, and never more important than in this instance. From the days of Astruc to this hour I am firmly persuaded infinite harm has been done by upholding the virtues of mercury as a specific in venereal cases. From him the chief part of the arguments which have been produced in writings of the last fifty years have been directly drawn, in almost every instance, with but a *partial* selection of his historical evidence as to the new plague of 1494—1496. In some works which I have seen, there is evidently a tampering with the documents of those who wrote about the æra in question, by producing only isolated passages of their writings, which may be made into a consistent tale in favour of the doctrine that syphilis did first appear in Europe about the time of Columbus's return. Mr.

Carmichael, a man of whom I can never think or speak but with the respect due to great ability and perfect candour, has been misled, either by some of these contrivers of a tale, or by inadvertency in examining the passage which he quotes from John de Vigo, to prove that the callous ulcer was known to be a criterion of lues venerea in 1503. De Vigo does indeed state that the disease almost always appears "on the genitals of both sexes in pustules sometimes of a livid, sometimes of a black colour, at other times whitish and surrounded with callus." But Mr. Carmichael has overlooked what follows. "These pustules," says De Vigo, "in spite of all efforts to cure them, whether by external or internal remedies, always spread their malignant fomes through the whole habit, producing very obstinate ulcers of the pudenda." Now, I ask whether such a description, when thus entirely cited, could be expected to convince any one that modern syphilis was the disease intended by De Vigo. I have seen only few examples of the pustule which precedes the Hunterian chancre, but I never saw it, nor do I believe that any one has ever seen it, with the least appearance of callosity. The callous base and edge have, in every instance known to me and my professional friends, belonged only to the ulcer, and beginning with the first formation of a cavity, have gradually put on the hard character, increasing in hardness as the cavity spread, and the edge becoming ragged as if its dense constriction were rent by the dilatation of the sore. Again, De Vigo speaks of various kinds of pustules

and remarks one, the black species, which belongs only to the phagedænic ulcer, as far as I have seen or can learn, and never in any one instance was known to be followed by a Hunterian chancre. Thus has Mr. Carmichael mistaken the ground of his expressed satisfaction that syphilis was so early discriminated; for, with the exception of De Vigo, I do not know of a single author for half a century after 1494 who takes the least notice of callosity as connected with venereal primary symptoms. However, the very able practitioner and author of whom I speak has no trace of want of candour in this misapplication of De Vigo's testimony; his whole work is an able performance, and has been of the greatest practical utility. Moreover, he did not join in the outcry of the partisans of mercury. With an honourable attention to the statements of the military surgeons, he tried whether Hunterian chancre and its sequelæ could be cured as they alleged, and having succeeded, published in his second edition two cases, in the last of which he had almost been persuaded, by urgency of symptoms, to resort to mercury.

The idea of a new disease will naturally tend to countenance, and I know has extensively recommended confidence in a specific remedy; yet to what a miserable shift have authors been reduced who could venture to assert that the new plague of 1494, as described by writers of that age, was the modern syphilis, of which the Hunterian chancre is the only fixed and defined criterion. It is perfectly untrue to state, that the authors of Boer-

haave's collection (abstracted in Armstrong's Synopsis) afford any support to such a doctrine. So contrary is their account, that all the diseases called pseudo-syphilitic, since Mr. Abernethy's work—the cases of eruptive symptoms after ulceration of the mammæ, mentioned by Mr. Hunter—the tubercular eruption noticed by Dr. Bateman in the Medico-chirurgical Transactions—together with Yaws and Sivvens, and perhaps more than all these, are included under the descriptions of the various authors in that collection. I say this explicitly and advisedly, and should deem myself justified in refusing to listen to a man who, after reading even the abstract by Armstrong (a warm and partial approver of mercury) should express the contrary opinion. Indeed, Astruc himself might set the controversy at rest for ever: he has included forms of disease not belonging to the Hunterian chancre, nor to any thing lately brought into connexion with it, under his idea of syphilis; and his whole notion of a new disease rests ultimately on the truth of one proposition which he has taken as an axiom, namely, that syphilis is incurable except by mercury. The army surgeons have refuted this axiom most decisively, and it is as completely refuted by a large portion of those practitioners who saw the new plague in the age of its pretended origin in Europe, and treated it successfully without mercury.

It is scarcely necessary for me to remark that I object to courses of mercury; I do object to them strongly, and, as I shall show, not without reason.

My own experience, to which I require no consent, has long convinced me that, in almost every instance, where a course of mercury has been administered, various distressing effects of the remedy have remained. It is usual with many practitioners to enjoin pure air, warmth, temperance, exercise, attention to the bowels, and regularity of life, after a mercurial course; and I sincerely join with them in esteeming such advice to be a momentous part of our duty. But the recommendation is rarely attended to; yet I never knew an instance where it was not followed, in which some derangement of the general health, and often confirmed constitutional disorder, did not ensue. I would not be understood as wishing to disparage the use of this medicine as an occasional alterative; or in some cases of fever, especially in a tropical climate, where I have seen large doses of calomel act like a charm; or in instances of acute inflammations, which demand an instant and powerful counter-agent. But I anxiously desire to dispense with the exhibition of mercury in courses, and, when carried to the length of any considerable influence upon the system, in diseases of slow progress. We have lately been told that mercury is productive of no evil consequence when administered, even to profusion, in the East, for complaints of those climates not venereal: and hence we are to infer that the production of disease of the bones in venereal patients is not to be ascribed to mercury, but to the virus of Lues. But we have melancholy and substantial proofs in this country that such

tidings from the East are not to be implicitly trusted. I am informed that there are in the museum of Fort Pitt, attached to the military hospital at Chatham, many preparations of the bones of men disorganised, if abundant testimony can be believed, by mercury alone; the subjects from whose bodies they were taken, never having had any venereal complaint, but were all treated by mercury for other affections. These preparations were sent from our own oriental colonies. At home, if we see such a terrific spectacle, we are often assured, even where no evidence of the fact can be adduced, that it is the consequence of venereal infection. But there are, nevertheless, many such preparations in our various museums which have been referred, upon strong grounds, to the operation of the specific alone, though, of course, those grounds have been disdained by many. Nothing is more common, at the public hospitals of this country, than for patients to return after a mercurial course for venereal disease, complaining that they are tortured with nocturnal agonies. The surgeons in general know these sufferings to be produced from mercury, and not from venereal disease, and the general direction is to clothe warmly, and avoid cold air, &c. The surgeons are, I believe, correct in their opinion as to the cause; but do such pains exist, can they exist, without some process going on which ought to be suspected of evil tendency? I know of no continued pains of similar character which do not indicate mischief in the constitution. I have known cases, too, in which bones have been

fractured by apparently inadequate exertion of patients under or soon after courses of mercury, and have been satisfactorily informed of others. And further, if the extracts from the writings of the army surgeons, which I have given, be perused, we surely cannot refrain from allowing considerable weight to their affirmation, that affections of the bones have been extremely rare, when the non-mercurial plan was pursued—and, I am fully justified in adding, might possibly, in the few examples which did occur, have been owing to a previous disorder of the habit from courses of mercury. I think it should always be inquired whether such treatment has been undergone; anticipating, from what my own practice has shown, a result confirmatory of my opinion, of the ill effect of that medicine. We are not without high authority for specifying actual, and in a pathological point of view, terrible injuries, plainly owing to the cause which I have inculpated. Dr. Armstrong, speaking of chronic diseases of the heart, enumerates among the causes long continued courses of mercury. He says again, and truly, that, by mercury carried to ptyalism, the action of the heart is frequently preternaturally excited or depressed, and sometimes rendered irregular. Again, in Phthisis, almost all have united to admit that the same medicine aggravates the disease. But the most remarkable manifestation of such evil that I know, is noticed by Mr. Joseph Swan, late of Lincoln, who states, that in the spinal cord and its nerves he has seldom seen inflammation, except in

the semilunar ganglia of the great sympathetic nerve, which, when the system has been impregnated by mercury, are inflamed, both superficially and in the section, so as to contrast with ganglia in a healthy state, as a bloodshot eye differs from an eye which is uninflamed.

It is impossible for any one duly to estimate the importance which the discoveries of latter times have conferred upon this portion of the human frame, connected as it is with our very existence, and not to feel some misgivings concerning a medicine which thus disturbs it. If the opinion, that the ganglia are reservoirs of the nervous fluid, deserve the countenance which has recently been bestowed upon it, we cannot but revolt at the use of any agent which thus inflames a congeries so intimately connected with, and presiding over, the functions of the thoracic and chylopoietic organs.

There is no subject in the whole range of medical science which is involved in more obscurity than the modus agendi of medicines. We see that the exhibition of certain remedial agents is followed by certain effects—some acting upon the bowels, some upon the urinary organs, some upon the skin, and others again upon the glandular system. But we are in ignorance how or why medicines affect different parts of the body; we are simply acquainted with the fact, and cannot detect the mediate processes. The speculations which have, from time to time, been made on this subject are but melancholy exemplifications of the weakness of great men. Even in later times, Cullen con-

tended that mercury had a particular tendency to unite with ammoniacal salts; and that by its union with the ammoniacal salt contained in the serum of the blood it becomes disposed to pass off by the excretions generally; and further, that the ammoniacal salts being thrown off more copiously by the salivary than by any other secretory parts, constituted a reason for ptyalism. I shall not stop to inquire how Cullen had ascertained the highly ammoniacal nature of saliva; but I will pass on with the observation, that the whole of his theory is founded on the supposition that mercury enters the vascular system. In order to ascertain the truth of this doctrine, the most accurate experiments have been made. At the request of Sir A. Cooper, Mr. Allen analysed a pint of blood, a quart of saliva, and a pint of urine, taken from patients labouring under ptyalism from mercury; but he failed to discover the presence of the mineral by any of the exquisitely delicate tests which will indicate the most minute particle. Dr. Bostock in like manner analysed the saliva, but could not detect mercury.

If I might be permitted to indulge in a conjecture concerning the action of mercury, I would say, looking to the morbid appearances described by Mr. Swan, and to the influence which this mineral undoubtedly possesses over parts which derive their nervous power from the great sympathetic, that its effects upon the state or contents of vessels is of a secondary nature. This indeed may be affirmed with respect to many medicines, that they act

through the medium of the nerves, because we are aware that the vascular and other parts of the system only exert themselves in consequence of nervous influence; but mercury seems to hold especial dominion over the intercostal nerve. How it is that mercury thus acts, we cannot demonstrate; and conjecture would perhaps but lead us into that maze of folly which I have just censured.

There is, however, a curious and impressive fact which Dr. Wollaston has shown; namely, that when mercurial friction is applied to accumulate electricity by the machine, the presence of oxygen is necessary to the effect. It is related too by Mr. Hunter, that a patient treated by mercury for venereal disease, had been previously electrified for some other ailment with little or no effect; but when under mercurial influence, a much less charge affected him, and his cure for the first complaint was perfected. The operator afterwards prepared patients in like manner, and found advantage from the practice. Some remarkable facts are on record with respect to the fracture of bones by lightning without breach of surface, both in human and brute bodies; and if I can trust my own sensations, and give like credit to some experienced and intelligent friends, the stress of a galvanic shock seems to bear nearly about the region of the semilunar ganglia. I think it possible that mercury and other metals applied to the surface may have an effect on the nerves under some conditions of body; and one contributor to the Edinburgh Medical and Surgical Journal has given an affirmative

result from three trials. I should be anxious, had I the requisite opportunities, to search for the presence of the mineral in the lungs, because it may be that fumigation and inunction are in truth but two different modes of inhalation, since from what we know of the effect of mercurialised atmosphere, we may venture to infer a possibility that a person who breathes and sleeps in an air to which mercury, borne about his own person, is continually exposed, may inhale a greater or less quantity. It is not, therefore, quite extravagant to aim at ascertaining whether, by chemical decomposition in any part of the pneumonic apparatus (if not by such decomposition on the surface), the precise agency of mercurial oxides may be developed and demonstrated. It is clear that crude mercury is inoperative.

A

PRACTICAL TREATISE,

ETC.

PART I.

DISEASES OF THE PENIS.

Amongst the various diseases to which the penis is liable, there are certain determinate kinds of ulceration which have their origin in sexual intercourse, or in the direct application of some morbific matter secreted by the genitals. There are again other diseases of the male organ which may or may not originate in sexual commerce; as, for example, phimosis and paraphimosis. And, lastly, the penis is subject to various diseases, in common with other parts of the body, and having no reference to venereal congress. I propose to follow this arrangement in the subsequent detail; but, previously to this, I will briefly allude to those parts of the organization of the penis which materially modify the appearance and progress of disease at this part.

The skin of the penis is continuous with that of the pubes; it has a large number of sebaceous fol-

licles; it is exceedingly lax under ordinary circumstances, and has beneath it a large quantity of cellular tissue, containing an abundance of veins and nervous filaments. The prepuce, or foreskin, apparently consists of two membranous layers, between which is a quantity of cellular membrane. The outer layer consists of common integument, while the internal portion is a smooth mucous tissue, which, passing down beyond the glans, is then reflected back over this body in the same manner as the conjunctiva of the eye. The internal duplicature of the prepuce is remarkably fine and delicate, and, at the corona, is beset with many small glands, which secrete a thick unctuous humour, having a peculiar odour. The cellular tissue between the layers of the prepuce is extremely loose, readily admitting of the infiltration of fluids. The glans penis is of a spongy texture, invested, as before stated, by a thin mucous membrane, continuous with that of the urethra, and covered by a very fine epidermis.

CHAPTER I.

DISEASES WHICH ORIGINATE FROM SEXUAL INTERCOURSE.

SECT. I.—*The elevated Ulcer.*

THERE is no species of sore to which the genitals are subject so frequently seen as the elevated ulcer.

It is usually found either on the glans penis, or upon the internal or external part of the prepuce (in which situation it frequently induces phimosis); but it may also occur on any of the neighbouring surfaces, as on the scrotum, thighs, &c.

The first indications of the disease, usually in a few days after sexual intercourse, are itching and redness; then a small pustule is formed, with more or less inflammation; over which, after two or three days, a thin crust or scab appears. The confined matter under the scab occasions considerable pain, until it is released by the bursting of the cuticle, or by a portion of the scab being otherwise detached. After each effusion the scab becomes enlarged by accession of concreted matter; at first the scab is yellow, but afterwards becomes gradually darker, until it is nearly black, the colour being deepest at the centre. In this state, about four or six days after the first symptoms, the disease is usually submitted to the inspection of the surgeon.

From the fourth to the sixth day, the figure of

the elevated ulcer, as it next appears, after entire removal of the scab, is oval or circular, and concave. The colour of the concavity is glossy brown, unhealthy red, or more frequently dusky or yellow.

When situated on the angle between the glans penis and the prepuce, this ulcer has frequently a deeper concavity, accompanied, for a short time, by hardness of the surrounding texture. When situated on the inner surface of the prepuce, the frænum, or any part behind the glans, except that just spoken of, it generally has but little concavity.

About the eighth or ninth day, the ulcer is marked by elevation of the whole surface: at length it assumes the appearance of a fungus, raised so as to project, in a body, beyond the level of the surrounding skin. The outer edge of the elevated body often protrudes still farther beyond the surface of that body, and the whole then appears to be of considerable thickness, and, when examined only by the eye, would give an idea of hardness. The outer edge is seldom lower than the elevated surface. The whole projection is often very considerable, especially when the ulcer is situated on the external surface of the prepuce, on the body of the penis, and on the scrotum. On the scrotum so great is the elevation, that it often resembles a large wart.

When the ulcer is situated on the internal surface of the prepuce, or on the angle between the glans penis and prepuce, the projection is not so remarkable; but even at this part, that pathogno-

mic criterion is seldom dubious after the ninth day; when, by retracting the prepuce to its full extent, the elevated body cannot fail to be noticed at some point of the circumference.

If the glans penis and internal prepuce be simultaneously ulcerated, a remarkable difference of appearance will be perceived in these parts at the period of fungus. On the prepuce the projection will be manifest, while on the glans penis a concavity will remain, and there the ulcer will rather continue an ulcerating progress than exhibit any granulations; when granulation has commenced, it will heal without any effort to project.

This ulcer has usually spread to its greatest extent from the eighth to the tenth day, and from the fourteenth to the eighteenth day, has usually attained its greatest elevation. The surface and edge are most frequently of a dark-red colour, and, until about the fourteenth day, generally surrounded by an efflorescence or areola of the same, or of a lighter, hue. These appearances are most remarkable when the disease is on the external prepuce, the body of the penis, or the scrotum.

When this ulcer has attained its greatest height it remains without variation for an uncertain period, after which it gradually, though very slowly declines and heals. From three to six weeks may be stated as the usual duration, including the time from the first antecedent symptoms to perfect healing. Where fungi have risen, a pit or concavity remains after cure.

To distinguish the elevated ulcer from other sores incident to the genitals, we have a sure criterion after the eighth day, in its elevated fungus, with an edge either higher or not lower than the surface of the fungus.

From the callous ulcer it may always be distinguished by the absence of callosity, together with a projecting edge.

From the phagedæno-gangrenous ulcer it may be distinguished by its well defined margin, by absence of irregularity or corrosion of surface, and by exemption from the painful and acute symptoms of the phagedænic.

From the indurated ulcer it may be distinguished, though sometimes surrounded by a degree of phlegmonous thickening (particularly when large, and situated on the internal surface of the prepuce, or corona glandis), by its extent of thickening, and gradual diminution as the fungous granulations subside or contract.

In treating the elevated ulcer a cure cannot be much accelerated, because the disease has a pretty well defined course. In its earlier stages indeed, any interference except for the purpose of allaying irritation is commonly productive of mischief, and it is only after the ulcerative process has ceased, and the fungous state is established, that any thing can be done to accelerate a termination. During the state of pustule, means must be taken to protect it from friction; the bowels must be

kept open; and, should there be much inflammation, a circumstance which does not frequently occur, the ulcer and neighbouring surface may be kept cool with a dilute lotion of subacetate of lead, or the spirit lotion. When the scab is forming, if there be much pain, a warm poultice will generally afford relief, and, when there is much irritation, it may be continued till the fungous state begins; it is sufficient to remove the scab by poultice or soft dressings, and the pain soon ceases; after which, spermaceti ointment will prevent the formation of scab, and, consequently, the recurrence of pain. If the scab be small, and there be no pain, it is best not to interfere.

When the ulcer is on the internal surface of the prepuce, the dilute lotion of subacetate of lead should be applied by means of a piece of lint kept constantly wet. This ulcer does not scab upon the internal surface of the prepuce, consequently no pain ensues there from confinement of matter; but frequently, from friction of the clothes in walking, &c., inflammation, swelling, and phimosis supervene. As precautions against these, rest, abstemiousness, and a proper state of the bowels, must be maintained.

When, however, inflammation, swelling, and phimosis have supervened, a strict antiphlogistic regimen should be prescribed, the recumbent posture, cold lotions or poultices to the penis, and the sore kept clean by frequent injection of tepid water.

During the states of pustule and scab it is essentially beneficial to confine the patient to bed. Thus

bubo will be often prevented, or, should it be formed, resolution be much more probable; local irritation will be avoided or lessened, and constitutional affections frequently prevented. When symptomatic fever runs high, which seldom occurs after commencement of the fungous state, antiphlogistic treatment should be pursued to the fullest admissible extent.

During the fungous and declining states, the treatment which least interrupts the ordinary course of the disease, and has the best effect, is to touch the surface of the sore daily with sulphate of copper, but so lightly as to stimulate merely, and not prove an escharotic. When the sore is on the external integuments, after the use of the sulphate of copper, a simple dressing should be applied for defence of the part; when on the internal surface of the prepuce, on the glans penis, or corona glandis, a solution of sulphate of copper, in the proportion of one grain to an ounce of distilled water, may be employed instead of the lotion of subacetate of lead.

The employment of mercury will often retard the healing of this ulcer, and keep it obstinately stationary for several weeks; and in many instances, this medicine is positively injurious, causing the ulceration to extend rapidly.

If leeches be applied to the groin for the reduction of bubo, the leech-bites will frequently become sores of a similar character to those on the penis, and pursue their course with like symptoms.

Buboes consequent upon the elevated ulcer, when they suppurate, have a tendency to form projecting

or undermined edges, especially where much mercury is administered.

When the fungus appears on the scrotum in the shape of a wart, it may be rapidly cured by a lotion of oxymuriate of mercury, in the proportion of two or three grains of the oxymuriate to an ounce of lime water.

Sect. II.—*The Superficial Ulcer.*

The superficial ulcer is not of very frequent occurrence; it is found on the external and internal surface of the prepuce, and I believe not elsewhere. It is preceded by a pustule, the contents of which, on escaping, form a scab, and as the scab becomes extended, the cuticle disappears from beneath it. The figure of the superficial ulcer is circular or approaching to circular. The extent varies; in ordinary cases the largest size is about that of a shilling, but considerably greater if neglected or ill treated, especially when the constitution is much disturbed. The colour is a lively red, and the surface is on a level with the skin of the surrounding part.

When healing is in progress, the surface becomes gradually depressed, and the cavity is not subsequently filled up, but remains after the ulcer is healed. Occasionally, for a short time, a fungus rises as from the elevated ulcer, projecting beyond the level of the surrounding skin.

To distinguish the superficial, when not disposed to gangrene or fungus, from the elevated ulcer

before elevation takes place, we must bear in mind that the superficial ulcer is much less marked by the ulcerative process, so that unless from leaving a depression of surface after healing, and thus showing a loss of substance, it might be thought to heal by the first intention. But, when a fungous elevation ensues, the superficial cannot be distinguished from the elevated ulcer; nor is there need for distinction as regards the treatment. In both, a remission of constitutional disturbance always accompanies the elevation.

From the indurated ulcer of the internal prepuce, the superficial ulcer is distinguished by absence of cartilaginous hardness beneath the surface; and further, the indurated ulcer, as far as I have seen, never occurs on the external prepuce.

From herpes præputialis on the internal surface of the prepuce, it may be known by larger size, uninterrupted continuity of diseased surface, and the red, brown, or livid colour; whereas herpes exhibits a patch of small and distinct vesicles or ulcers, and a white or yellow colour. Again, on the external surface of the prepuce, the superficial ulcer gradually increases in extent, and has a large, thick scab, whereas herpetic ulcers at once attain their full size, and have their scabs either distinct or slightly connected together.

From simple excoriation it may be discriminated by having a figure circular, or approaching to circular, and by the presence of constitutional excitement; moreover, excoriation has a yellow surface and abrupt margin.

In the treatment of the superficial ulcer, it is most necessary to observe the constitutional symptoms which are intimately connected with the progress of the sore, and, these being of a highly inflammatory type, require to be controlled by decisive measures. By such proceeding, in this, as in the case of elevated ulcer, we not only accomplish an earlier local cure, but, in all probability, often avert consecutive disease, or at least moderate the severity of it.

Constitutional excitement and local inflammation are greatest in the early state of ulceration; at a more advanced period both are mitigated. When the constitutional derangement is reduced, or altogether suppressed, the sore not unfrequently becomes proportionally indolent.

The constitutional disorder is most effectually subdued by bleeding, purgatives, and diaphoretics, in measure corresponding with the symptomatic indication.—The local applications should be of a sedative kind during the inflammatory stage; a dilute lotion of subacetate of lead applied to the surface will generally be found most efficacious. If the sore become indolent, sulphate of copper, nitrate of silver, nitric acid, or the ointments of nitrate of mercury, or subacetate of copper, and other stimulants, may be applied with advantage.

Sect. III.—*The Indurated Ulcer.*

The indurated ulcer is not of very frequent occurrence, at least within the range of my observa-

tion and inquiry: it is found only on the internal prepuce and glans penis.

The first symptoms of this ulcer have been known to arise within two days after the sexual intercourse from which they have proceeded, and within three days gangrene has been observed. Previously to the formation of ulcer, in many instances there is, for some days, only a yellow surface and exudation of fluid. In other instances, we find a patch of a lively red colour, such as would appear after mere abrasion of the cuticle, or recent excoriation. At the commencement of ulceration, the colour of the sore is frequently changed from yellow to a brown or livid hue.

When this ulcer is situated on the internal prepuce exclusively, it is usually level with the surrounding surface, and, as far as ulceration extends, the part beneath is indurated, so as, when touched, to impress the idea of cartilaginous firmness: when it extends over a space including portions of the internal prepuce and glans penis, the induration is present on the prepuce but not on the glans.

If situated on the glans alone, the depth of the ulcer is occasionally equal to the diameter; the cavity is narrowed from the surface to the bottom, so as to resemble a hollow cone, and has not any induration. So that in the case of the indurated ulcer the characteristic of the species belongs only to one of two surfaces, that is, to the internal prepuce and not to the glans penis. But I have retained Mr. Evans's specific name, because it is

very generally received, because it is the most convenient for practice, and because we have no other pathognomic criterion at all available, except this, for which we are indebted to his acute observation and judgment.

When the ulcer is situated on the internal prepuce, about the angle between the prepuce and glans penis, it always has a disposition to extend between the integuments and the body of the penis; and in such cases the ulcer has some concavity, though on all other parts of the internal prepuce it is usually level with the surrounding surface.

Disease does not, at first, appear to be propagated beyond the site of the ulcer, since, if the indurated portion be removed by the knife, the wound heals as if no disease had been present.

To distinguish the ulcer under consideration, in its indurated form on the internal prepuce, from the callous sore, it may be remarked that the indurated is level with the surrounding skin, and has cartilaginous rather than callous hardness. On the glans penis induration is not present, while the callous ulcer on that part is perhaps always more extensively hard than elsewhere. Further, the edge of the indurated ulcer is almost universally even, while the edge of the callous, at least after some progress, becomes broken or ragged. When situated on the prepuce, near the angle between the prepuce and glans penis, the indurated ulcer has not the callosity of margin and prominent

broken edge of the callous ulcer, and may be discriminated by a disposition to extend under the integuments.

From the elevated ulcer which occasionally exhibits concavity and hardness on the angle between the prepuce and glans penis, the indurated species is distinguished by a much less remarkable hardness, and by a disposition to extend under the integuments.

In treating the indurated ulcer when unattended by violent symptoms of general disturbance, extirpation of the hardened portion by the knife is at once the shortest and the surest method. But in many cases a high degree of constitutional disturbance accompanies this species of sore, and then mortification to a great extent is apt to ensue. Constitutions impaired by bad air, scanty or unwholesome diet, by long residence in hot climates, or by dissipation, are most liable to be thus attacked. When these symptoms supervene, there is much anxiety, heat of skin, quickness and fullness of pulse, a white and furred tongue, great swelling and pain of the prepuce. On such occasions decisive practice is called for. Where no counter-indication forbids, general bleeding should be at once adopted, as the only resource on which sure dependence can be placed; with this, the use of purgatives, diaphoretics, antimonials in nauseant doses, and the local application of refrigerating lotions should be conjoined. The patient in the mean time is to be strictly confined to bed, and

care is to be taken that a free circulation of cool and pure air be promoted.

In some cases which I have seen, both where sloughing has been immediately threatened, and after it has taken place, patients have complained of intolerable itching in the parts surrounding the sore, so great indeed as to deprive them of rest. This distressing symptom has, in some instances, yielded to a spirituous lotion, and sometimes five minims of the tincture of opium added to each ounce has materially increased the good effect. In other cases, however, the lotion of submuriate of mercury and lime-water (the common black wash) has proved to be an adequate remedy when all other means have failed.

The hardened spot which this ulcer occasionally leaves behind is very prone to ulcerate again from neglect of cleanliness, irritation of sexual intercourse, and other causes of excitement, and with some patients is remarkably liable to erysipelas.

Mercury in this description of sore is generally either hurtful or useless; constitutional symptoms do not commonly follow when this medicine has not been given.

Sect. IV.—*The Callous Ulcer.*

During the period of Mr. Hunter's practice and observation the callous ulcer seems to have been more prevalent than any of the other species; but as Mr. Abernethy truly remarks, it is now so much less frequently met with, that many practitioners entertain a doubt whether there ever was such a

disease as described by Mr. Hunter. I have, however, witnessed many examples of it coinciding in every respect with his very good description, and completely vindicating his well-earned credit for accurate observation.

This ulcer is found on the glans penis, on the frænum, in the angle between the prepuce and the glans, on the body of the penis, sometimes on the pubes, and occasionally on neighbouring surfaces. It is most frequently seen near the frænum and in the angle.

Before the ulcerated stage, a small pimple, full of matter, generally appears, and, when situated upon the glans penis, the pimple has but little inflammation, hardness, or tumefaction, and is accompanied by more or less itching. On the frænum, and more especially on the prepuce, the inflammation is more visible and extensive, and pain succeeds to the itching. When the prepuce is affected, simple excoriation only precedes the ulcerated stage. Sometimes the ulceration is slight in comparison with the extent of the callosity, and occasionally we find merely a callous tubercle without any breach of surface.

The callous ulcer is usually formed on the third or fourth, or from that to the seventh day after the sexual intercourse from which it proceeds; but I have known it to be considerably later. It has been believed to have been formed within one day, and to have been delayed for six or seven weeks. These remarks are applicable to venereal sores in general.

The figure of the callous ulcer is circular, or approaching to circular, and excavated. From the surface of the cavity to a greater or less depth the part is callous, so that on its superficial edge the callosity may be distinctly perceived, not softening gradually into the adjacent texture but having a defined outer margin, so that the superficial edge is prominent all round from the level of the skin. Though at first regular, this edge becomes ragged and indented as soon as the ulceration has made any great progress. On the body of the penis the callous portion is shallow, and the edge, being therefore of a more slender fabric, is less remarkably prominent. I should say, as a plain direction, that we may always discover a tough hollow shell, from the thickness of stoutish leather to that of slight parchment, imbedded, as it were, in the substance of the member, and that the superficial edge of the shell is more or less prominent according to its own thickness or thinness, to the depth or shallowness of the sore, and to the firmness or looseness of the part where it is situated. A viscid matter adheres to the surface of the cavity, and it is, for the most part, of a dark livid colour; it has always a foul, sluggish aspect. There are not any granulations, or, if any, they are obscure and feeble. The extent of the ulcer is generally from the size of a pea to that of a sixpence, but on the body of the penis sometimes extends round the member. The most remarkable characteristic of this ulcer is indolence. It advances but slowly in comparison with other species, so that the callous portion impresses the

idea of a barrier which obstructs at once both the local ravage of disease, and the process of repair.

To distinguish this ulcer from others which are of an indolent character, it is to be observed that though indolence is generally accompanied with some surrounding hardness, no other ulcers of these parts have such a *defined* callosity; none convey to the touch so distinct a sensation of firmness and solidity, but on the contrary other indolent sores have a firmness gradually softening into the neighbouring parts.

The callous ulcer, when situated on the body of the penis, may possibly be confounded with the phagedæno-gangrenous, because on that part the callous ulcer is shallow and dark. On a more exact inspection it will be found that the former has its callosity and prominent edge, and the surface does not exhibit any slough or mortification. Should doubt remain, a little delay will disclose the species of the sore, since the dark livid colour and viscid cavity of the callous ulcer will remain little varied; but the phagedænic will spread more rapidly. Lastly, as Mr. Carmichael has very justly observed, if mercury be not employed, the callous ulcer will every three or four days exchange its dark livid colour to a tawny or light brown hue, at the same time extending its dimensions slowly, the surrounding callosity in the mean time obviously increasing.

In the treatment of this ulcer, caustics have been

employed; and they are a favourite remedy with many practitioners. In my opinion they are highly useful under certain limitations, but great discretion is necessary in the use of them. When the affection is recent, and we have fair grounds to hope that contamination has not been spread, the disease may be extinguished at once by caustic used with discreet freedom. On the contrary, when ulceration is completely established, caustics only produce aggravated evil, since the stimulant power of them urges mischief along the course of the lymphatics, and bubo, in such case, is very frequently a consequence.

Nitrate of silver, which is very commonly used for this purpose, seldom destroys the entire sore; the inflammation which it produces increases the activity of the absorbents, and bubo is very often a consequence. A solution of the sulphate of copper, on the contrary, effectually destroys the sore without producing irritation; this remedy should be employed in the proportion of a scruple of the salt to an ounce of distilled water, and is best applied on a pledget of lint. Absolute rest should be enjoined. If any redness be excited by the sulphate, a dilute lotion of subacetate of lead should be used, and a purgative dose of calomel given in the evening, with a requisite quantity of sulphate of magnesia in the morning. If healing does not readily take place, then the ulcer should be touched with a camel's-hair pencil dipped in a solution of sulphate of copper in the proportion of ten grains of the sulphate to an ounce of water.

Mercury may, and perhaps should, be prescribed in the treatment of this ulcer; it promotes absorption of the hardened edge, excites the languid action of the part, and accelerates the healing of the sore.

With respect to the best mode of employing this remedy great difference of opinion still prevails. The internal administration is certainly the most convenient, the most cleanly, and perhaps the most efficacious; and of all the preparations the blue pill is the form best adapted to the generality of constitutions. The use of mercurial frictions has nothing peculiar to recommend it; but where the irritability of the mucous membrane of the stomach and intestines forbids the internal use of the remedy, it forms an admirable substitute for the pill.

The dose of the blue pill should be five grains with a quarter of a grain of opium, to be taken night and morning; and if this quantity be not effective, two pills may be given at night and one in the morning, but such increase will seldom be required. When friction is preferred, one drachm of the stronger mercurial ointment should be rubbed for fifteen or twenty minutes on the inner part of each thigh, alternately, every night. But if the constitution of the patient be particularly irritable, it will be sufficient to commence with half a drachm of the ointment; and if either of the quantities already mentioned, after a few days, should not prove sufficient, a like application may be made in the morning as well as at night.

The continuance of this treatment is to be de-

fined by the sensible effects produced. A gentle mercurial action is to be sustained. The horrible practice of profuse salivation for many weeks cannot be too strongly condemned. I have sure conviction that such a measure has in many instances proved fatal: that it has entailed bodily misery on thousands is indisputable.

The species of sore under consideration, under the mild use of mercury, will exhibit healthy granulations, the circumference will gradually contract, and it is only necessary to apply simple dressings or dry lint. It is scarcely necessary to observe, that the doses must be judiciously adapted with this view, and in reference to the particular constitution under treatment. It has been laid down as a maxim to continue the mercurial influence until the hardness of the sore is entirely removed; yet there are cases where the hardness of a callous ulcer will remain for weeks after cicatrisation has taken place.

There is considerable difficulty in treating the callous ulcer when it occurs at the orifice of the urethra, since it is acted upon by the urine, and so prevented from healing. A short gum elastic catheter should be introduced and worn, and the part defended by a mucilaginous lotion, or mild ointment spread on lint.

It occasionally happens that the frænum is perforated, and great inconvenience ensues in the cure; it is better therefore, when an ulcer is situated at this part, at once to divide the frænum.

Even with the mild exhibition of mercury which

I have recommended, we must be careful that the patient be not exposed to wet or cold. The diet should be plain and nutrient. I am convinced that much evil results from too meagre a diet when a medicine is employed which makes such large demands on the powers of the body as mercury does. Two or three glasses of wine may be taken each day unless there be some obvious counter-indication; and if the patient have been a free liver, his ordinary stimuli must be moderately continued.

When there has been great irregularity of life, the callous ulcer will often, instead of its usual indolence, exhibit great irritability. Bakers and others, who labour during the night, and whose sleep is taken at irregular intervals, are much predisposed to such irritability of the sore. The callous portion, in such cases, becomes inflamed and extended; the secretions disappear, or become very acrid, and the ulcer is tender and irritable. Here mercury must not on any account be used, because it will aggravate inflammation and lead to gangrene. The whole virile member has often been destroyed by mercury injudiciously exhibited under these circumstances. If, therefore, it has already been employed, it must be immediately relinquished. The patient should keep the recumbent posture, with the penis and testes well supported; and the use of poppy fomentations and poultices will be found the best local means of subduing irritation. A lotion composed thus—powder of opium, one dram, lime-water, eight ounces; mix and

strain, and to the strained liquor add mucilage of gum Arabic, one ounce—is also very effectual, and may be applied either warm or cold, as may be found best to agree with the feelings of the patient.

After purging, opium should be given in repeated doses, combined with a saline, such as the liquor of the acetate of ammonia.

In some cases it is necessary to make a decisive impression on the sanguiferous system, by abstracting blood from the arm; to reduce local inflammation by applying leeches, and to adopt a completely antiphlogistic method. Thus the affection may often be arrested at once, and most destructive gangrene prevented. In general, however, we have to contend with constitutions that will not bear the loss of blood; in these cases, therefore, we must resort to the tranquillizing influence of opium, in conjunction with saline diaphoretics, and at the same time sooth the irritated part by emollient applications.

If the sore have already put on a sloughing appearance, and there be not much surrounding inflammation, the lotion of dilute nitric acid* may be applied as a gentle stimulus, or poultices composed of the grounds of stale beer. Where the slough is large, and the parts at the same time sluggish, not evincing any sufficient effort to detach it, warm spirits of turpentine may be applied.

If gangrene evidently result from deficiency of

* This is prepared by adding one drachm of pure nitric acid to a pint of water: the strength may be varied according to circumstances.

the vital power, or from previous excessive action, under which the constitution has sunk, tonic means should be adopted. The sulphate of quinine may be given with opium, and likewise more diffusible stimuli, such as ammonia and musk, or ammonia and opium. Spirits, wine, or porter should be advised, with reference to the habits of the patient.

It happens, not unfrequently, that a large sloughy sore, attended with a high state of inflammation and acute pain, and with corresponding constitutional disturbance, is rendered mild and tractable by a copious bleeding. This effect is often produced by a spontaneous effusion ensuing on the ulceration of vessels to which the sore has reached; when, in a few days afterwards, the slough separates, and the surface assumes a more healthy aspect.

Sect. V.—*The Phagedæno-gangrenous Ulcer.*

Every kind of venereal ulcer to which the genitals are subject, is liable to phagedæna or sloughing, from a particular state of the constitution, from an unwholesome atmosphere, from the effect of injudicious treatment by mercury, and from various causes acting severally or in combination. When a sore, at first of an ordinary character, is thus dangerously modified, the cause is usually apparent, and the adventitious effect ceases on the removal of that cause. According to the obvious calls of circumstances, a change of place to a purer atmosphere, the more free admission of unvitiated air, general bleeding, when there is high and excessive

vascular action, with soothing applications, will in most instances produce a rapid amendment.

There is, however, an ulcer specifically phagedæno-gangrenous, combining in a singular manner these two destructive processes, and which is not under the influence of temporary causes, but pursues a course in which phagedæna and gangrene appear to be the law and principle, if I may so speak, of the disease. It attacks constitutions of characters apparently the most different, and which would not be thought to have any morbid propensity, or especial susceptibility of particular disease, in common; and above all other species of venereal ulcer, it baffles almost every plan of treatment. That it does depend upon some particular condition of constitution analogy would lead us to believe, but we are in ignorance of the nature of this condition. It is a remarkable fact, that the greater number of persons affected with this disease whom I have seen in this metropolis, have contracted it in a particular district of the town—the neighbourhood of Whitechapel. A place named Swan-alley, not far from St. Katharine's docks, would seem to be the grand centre of infection; and, I am informed, that, in the Borough hospitals, it has been so customary to receive the very worst cases of such disease from that immediate locality as to have given rise to a common inquiry, even with the hospital attendants, whenever a patient appears with very severe symptoms—"Is this a SWAN-ALLEY case?" Upon investigation, I find that the place in question is, or rather, was (being

now cleared of its former buildings) inhabited by keepers of stews, and their houses were frequented chiefly by foreign sailors, to whom very young girls were prostituted. It may not be unworthy of notice, that a general opinion prevails among the dissolute females of the district, that a very destructive species of infection results from intercourse with foreigners, especially Lascars.

The prostitutes of this neighbourhood being of the very lowest description, uncleanly in their habits, and invariably addicted to the most inordinate use of spirituous liquors, it is probable that the chronic effect of such habitual stimulants contributes to form the particular state of constitutional susceptibility which disposes to phagedæno-gangrenous disease. But I have witnessed some cases in which young men, who have been considered temperate, have contracted the disease from these females; and this fact may appear irreconcileable with the opinion just expressed; but the more obvious symptoms of a constitution undermined by stimulants are often suppressed for a long time, especially in young men. Few sailors of any age are really temperate; and the vicissitudes of their condition make them at once more inclined to excess when opportunities arise, and more able to withstand immediate and obvious effects of it, from the active struggles and continued deprivations which at intervals ensue. Perhaps, therefore, excessive irritability, which would appear to be the most likely disposition of the constitution for this phagedæno-gangrenous disease, may be, though not immedi-

ately apparent, yet chronic and latent in them, and declare itself only when the excitement of infection calls it forth. It is to be remarked too, that desultory rest and long vigils are incidental to the life both of the prostitute and the sailor, as well as close and thronged places of sleep; and, as far as my observation goes, these circumstances are eminently productive of irritable habit. I think that excessive irritability of constitution always, or nearly always, ensues upon continued change from great excitement, whether of body or mind, to depression, and from depression again to excitement, at irregular intervals; in short, that a harassing life makes an irritable constitution. If, moreover, we have it on satisfactory authority, that, at different times and places, a more than usually destructive form of venereal infection has been general; yet, as was the case, when the English were thus suffering in Portugal from what they called "the black lion," we have at the same time a knowledge that the lower order of prostitutes in those places have been filthy, intemperate, and irregular in all the economy of life; and that they who took the infection were, like soldiers in a campaign, subject to great and sudden changes of every kind, from extreme to extreme. The chronic is more untractable than the temporary disposition, as it is more implicated in the fabric of the constitution, and does not depend upon present, and external, and immediately removable causes.

The phagedæno-gangrenous ulcer usually occurs on the glans penis, but sometimes begins on the pre-

puce. I have one case distinctly in my recollection, where the prepuce was the first seat of the ulcer, and it gradually spread until the whole member, and a large portion of the scrotum, were destroyed. It is often formed so very soon after sexual intercourse, that the greatest impediment to assigning any distinct period, arises from the difficulty of conceiving such rapid progress. I have no doubt that destructive symptoms have been displayed within three days after the sexual intercourse from which they have proceeded.

The precise form in which the phagedæno-gangrenous disease first makes its appearance has not been distinctly ascertained, as the patient seldom applies for relief until the disease has made some progress, and the primary characters of course destroyed. There is then, on some part of the genitals, an excavated ulcer, of a circular or oblong form, with a regular, well defined, and somewhat sharp edge. The surface of the cavity is covered with a viscid, yellowish, or, in some cases, a brownish slough; the surrounding surface is more or less inflamed, and of a dark-red or purple colour; the edge and surface of the cavity are studded with numerous elevated and angry-looking points, from which occasional exudation of blood takes place; the discharge is thin, copious, and extremely fœtid. The patient usually complains of intermittent, burning, lancinating pain, entirely preventing repose. There is much constitutional excitement:—the pulse is quick and small; the tongue moist, but covered with white fur; the skin is hot and dry. The sore is extended by ulcerative process,

more or less rapid, so that each succeeding day we find the circumference enlarged, and likewise covered over with slough, which adheres firmly to the surface of the cavity. The slough does not become black or gangrenous until a later period of the disease, when the vital power begins to fail under its extensive ravages, and the patient exhibits typhoid symptoms.

In some cases, I have observed, at the commencement, a small spot—an incipient slough, extending deeply into the glans penis, without any distinct line of separation. The slough has generally increased for a few days, and has then separated, leaving a sore of the character described above, which continues, if not arrested, to destroy the neighbouring parts in like manner.

It is a fact of considerable importance, that while the separation of the gangrenous slough, which results from common inflammation, leaves a clean and granulating surface, the phagedæno-gangrenous ulcer, when the brown or black slough is removed, exhibits a surface devoid of granulations, and of an ash colour, interspersed with dark bloody points, or streaks of red.

This ulcer is so strikingly peculiar, both in appearance and progress, that it cannot be confounded with any other.

In treating the phagedæno-gangrenous ulcer it is advisable to begin with repeated doses of opium, in conjunction with diaphoretics, such as Dover's

powder, or tincture of opium, with liquor of acetate of ammonia, varying the doses according to age, peculiar habit, and other indications. The opium should be given only in sedative proportions, frequently renewed, so that the sedative influence may be sustained. The extract of henbane sometimes answers better than opium.

A nutrient diet should be prescribed, such as strong beef-tea, jelly, and the like: and if the patient have been accustomed to stimuli, they should be continued, unless there be some clear contra-indication. Pure air is most essentially necessary; in many instances, a change from a crowded ward or close room to a well ventilated apartment has had the effect of correcting the disposition in a sore to increase, but I have never witnessed this beneficial change in a striking degree with a case of phagedæno-gangrenous disease.

In the fever of irritation, if I may so speak, which I have before noticed as accompanying phagedæno-gangrenous ulcer, there is rarely any indication for general blood-letting; and in many cases where I have witnessed its employment, it has certainly been productive of mischief. In plethoric habits, however, a moderate abstraction of blood diminishes vascular action, and relieves local inflammation, so as to prepare the way for further remedies, especially for opium, which I am disposed to regard as the most powerful, and perhaps the only very powerful agent that we possess in the general treatment of this disease.

Mercury, as indeed might reasonably be pre-

sumed from the irritable state of the system, aggravates the mischief; the disease, under its influence, being hurried on with tenfold fury. Of this I have witnessed several melancholy examples.

Of local remedies, the most obviously effective are escharotics, which destroy the diseased surface at once; and the undiluted nitric acid is by far the most useful and manageable. In applying it, the part should be first entirely dried of its secretions, and the acid put on by means of a piece of lint fixed upon a probe or skewer, or other small rod of wood; if there be a thick slough, it should be partially removed before application of the acid. The edges of the sore, as well as the surface, must be completely destroyed. Some, I am aware, have recommended to protect the surrounding surface, while the acid is applied, by means of a coating of lard or cerate; but since disease extends beyond the limits of the ulcer, I prefer not to confine the agency of the acid too closely, and therefore dispense with such precaution. After application of the acid, dry lint may be laid upon the wound; and, as intense pain generally ensues, it is proper to give a full dose of opium or laudanum. At the expiration of sixteen or twenty hours, portions of the eschar may be removed, and measures taken to promote the separation of the remainder. On the removal of the slough, if the patient be free from pain, and the surface appear florid and healthy, treatment as for a common wound may be adopted, in which stimulants are generally most advantageous. A solution of nitrate of silver, in the pro-

portion of two or three grains to an ounce of distilled water, may be occasionally or constantly applied. But if the patient have suffered from recurrence of pain, referred to some particular part of the sore, or to the surface of it in general, the undiluted nitric acid should be again applied.

Opiate lotions are often eminently serviceable in allaying the intense burning pain; in some cases, I have used extract of opium, softened with water to the consistence of cream, and smeared upon the part, with excellent effect.

Some have recommended Fowler's solution of arsenic, directing that pieces of lint soaked in the solution should be laid upon the ulcer, to remain there for two or three hours, then to be removed, and the part to be covered with a bread-and-water poultice, renewed every six or eight hours. This method is said to have succeeded when others have failed, but I have not had any experience with this remedy.

It sometimes happens that spontaneous hæmorrhage immediately checks the violence of the disease. Observing this, practitioners have taken example from the natural process, and pared off the irregular surface of the ulcer, afterwards immersing the part in warm water to encourage the flow of blood; this plan, apparently severe, has been followed by cessation of pain, and rapid amendment of the ulcer.

Fumigations of the red sulphuret of mercury I have known in some instances to produce a favourable change in the disposition of this ulcer;

otherwise, as far as my experience has shown, mercury is always injurious. I have seen many cases in which salivation had been urgently promoted by empirics, and in every instance disease was increased to an alarming height, apparently commensurate with the degree of ptyalism induced.

Solution of the chloride of soda has also been used successfully, and in many cases stimulating dressings of turpentine, with fermenting poultices, will bring the sore into a healthy condition.

Occasionally we find that a favorable change takes place in this as well as other sores without any assignable cause, and even sometimes, when circumstances have been apparently most adverse. "I remember," says Mr. Crampton, "a case which I had under my care, and which strongly proves the powerful effects of a change of circumstances upon local diseases. It was the case of a gentleman who had a phagedenic chancre, by which he lost a great part of the penis. I had applied several kinds of caustic to it: I even applied Fowler's solution of arsenic to it, until I had him dancing about the room with pain; but all to no purpose. His father happened to die suddenly, in a fit of apoplexy; and as it was just at the time of the great fair of Ballinasloe, it was absolutely necessary that he should attend there, or lose perhaps some thousands. He told me of his situation, and asked my opinion. I candidly informed him, that I feared from the motion of the carriage, the fatigue of travelling, the unavoidable exposure to wet, cold, &c. he would lose the penis. He said he was obliged

to go; and he accordingly set off that night in the mail to the fair, with that frightful and ill-looking sore. He remained there three days: during that time the weather was extremely bad, and he was exposed to its inclemency each day from morning until evening. On the fourth day he returned to town, and called to see me. Guess my surprise when I found the chancre, which on his departure for the fair presented such a frightful aspect, converted into as healthy a sore as I ever saw."

Sect. VI.—*The Sloughing Ulcer.*

Although I have assigned a separate department to the consideration of sloughing ulcer, I wish distinctly to be understood that there is no particular kind of sore to which the term can be limited; but that every species of ulcer to which the genitals are liable may, under certain circumstances, take on a gangrenous disposition. It is a knowledge of these circumstances which is essential to the successful treatment of cases, where, for the most part, extensive mutilation is to be dreaded.

In considering the causes which are productive of gangrene of the penis, we must take a comprehensive view of the local and constitutional causes which lead to a similar result in other parts of the body. A fruitful source of mischief, and, indeed, I may justly say of misery, has arisen from the generally prevalent belief that the sloughing of venereal ulcers is of a specific nature, and consequently that it is necessary to arrest it by a specific remedy. The first common principles of surgery have been

forgotten under the delusive notion of contending with a specific disease. Hence has arisen the horrible practice of literally pouring in mercury in all cases where a venereal sore assumed a disposition to gangrene; it signified nothing whether the death of parts was the result of excessive or defective vascular action. Such was the treatment pursued at the principal hospitals in this metropolis, until within the last few years; and it is to be feared that this erroneous practice is still carried on by many who were pupils of these establishments, and who have not enjoyed the opportunity of witnessing the amended plan of treatment which it is consolatory to reflect has been in most instances substituted.

Ulcers of the genitals assume a sloughing disposition, from local as well as general irritation, which gives rise to inflammation, and, ultimately, destruction of the parts. If we suppose the case of a healthy young man having a small sore on the penis, and at the same time using violent exercise on horseback, acute inflammation is set up in the diseased parts, and terminates in sloughing. Such then is gangrene, the result of excessive action, arising from local causes of irritation. On the other hand, a patient having a similar kind of ulcer may be excessively intemperate, so as to induce a feverish state of body, or he may be attacked with simple fever from common causes; the diseased part then partakes of the general increased vascular excitement, and, from local peculiarities, may go on to gangrene: this would be an instance of

sloughing, as the result of inflammation, arising from constitutional causes.

The most dreadful cases of sloughing, however, are met with in a state of constitution diametrically opposed to that which I have just described. For example, a man whose constitution is utterly enfeebled by intemperate habits, with whom there exists an absolute deficiency of vital power both locally and generally, becomes infected with a venereal sore on the penis, which, in a man of a healthy constitution, would readily yield to common means, but with him rapidly spreads, and the contiguous parts speedily become gangrenous. A similar condition of system may be engendered by a combination of circumstances operating upon a previously healthy habit; such as the profuse exhibition of mercury, and confinement in the crowded wards and tainted atmosphere of an hospital. It is scarcely necessary to say, that the two latter causes act upon a diseased habit with tenfold fury.

After saying thus much of the pathology of sloughing venereal ulcers, it is unnecessary to enter into a minute detail of the requisite treatment, which, here, as elsewhere, must be regulated by circumstances. I may briefly observe, that those cases which are obviously dependent upon increased vascular action, are most under control, as, by a judicious and early use of antiphlogistic means, it is in our power at once to arrest the progress of disease.

CHAPTER II.

BUBOES.

Enlargement of the glands in the groin may take place from various causes, and is by no means invariably a consequence of venereal affection: it may arise from simple irritation in the course of the lymphatic vessels leading to these glands. Frequent examples may be observed in soldiers after a long march; and these buboes are, not unfrequently, followed by suppuration. Slight inflammation also of the foot or leg, without abrasion of cuticle or solution of continuity, often gives rise to bubo: irritation about the nates, from hard riding, will likewise produce bubo.

Venereal bubo occurs sometimes in one, sometimes in each groin; and it commonly happens that in each one gland only is affected: now and then the contrary takes place; but, in general, when several glands are enlarged, it is from simple irritation.

In forming an opinion of the nature of bubo, we should ascertain if it be accompanied, or have been preceded, by a sore on the penis. If not so preceded, the bubo is not venereal, for there is no example of venereal bubo having occurred without a sore. The next circumstance to which we must give attention is, whether the enlarged gland is situated at Poupart's ligament or below it; for, if the swelling be in a line with Poupart's ligament, it is probably venereal; but we may positively de-

termine that it is not so, when situated below. When there is a swelling in the groin, about an inch or an inch and a half below Poupart's ligament, it is most probably dependent on a sore on the foot or leg, or some irritation on the back or nates.

The bubo makes its appearance usually some days, occasionally even some weeks, after the breaking out of the primary venereal sore. Whether the tumor shall augment rapidly or slowly, depends upon so many collateral circumstances, that no accurate opinion can be formed; and still less can it be prognosticated, with any thing like certainty, whether it will proceed to suppuration or not. These points are much determined by the state of health and particular constitution of the individual patient.

The treatment of bubo in its primary state, when there is simple inflammation of the gland and the surrounding cellular tissue, must be conducted on the ordinary principles which guide us in the cure of inflammation generally. The application of leeches; the use of evaporating lotions; a strict observance of rest in the recumbent posture; and attention to the state of the bowels, are the most obvious means to be adopted. In some cases where the symptomatic fever is high, and the patient is of full habit, it is necessary to make an impression on the system by general blood-letting, which may be beneficially followed by the administration of tartrate of antimony. It occasionally happens that cold applications do not give much relief, but, on

the contrary, produce an increase of pain; in such a case recourse must be had to fomentations of the decoction of poppy, or light bread poultices made with the decoction in lieu of water.

In the early state of bubo, and even some time after existence of inflammation, when somewhat advanced to the state of suppuration, the disease will frequently subside under the use of pressure made upon the enlarged gland, especially when bleeding, aided by a brisk purgative, has been premised. The pressure is to be equally applied over the part, by means of a circular or oval flat stone, or a copper or leaden weight of suitable form and dimension, which is to be enveloped in a piece of tow or linen, and kept firmly on the part with a linen or flannel roller, so applied as to pass alternately round the thigh and belly and cross at the groin, or directly over the part to be compressed. It will be found advantageous to relax the parts by bending the thigh on the belly while the bandage is applied, which, when the limb is straitened, is thus rendered sufficiently tight over the groin; otherwise it is apt to become loose, and thus defeat the intention, and likewise occasion much uneasiness to the patient. The pain at first felt is severe, and the more so in proportion to the degree of existing inflammation; but, in general, it quickly subsides, and does not return.

When the gland continues hard and indolent, evincing neither a tendency to reduction nor to suppuration, the greatest advantage is derived from repeated blisters, which either soon cause re-

duction or suppuration. Friction with camphorated liniment is often useful in such cases.

It sometimes happens, notwithstanding every means, that the pain and swelling of the gland increase, and suppuration ensues. This is indicated by sharp pains darting through the part, and a pulsatory feel; when these occur, the suppurative process has generally commenced. The symptoms, when a bubo goes into suppuration, are precisely the same as those which take place in common abscess, with this exception, that there are evening exacerbations; and, in this respect, precisely the same effect is produced as in venereal affections, and other exanthematous diseases caused by morbid poisons, of any other part of the body, the exacerbations coming on in the afternoon, and generally lasting till the hours two or three in the following morning.

When it is evident that the progress of buboes to suppuration cannot be prevented, the application of emollient cataplasms and warm fomentations will be found to hasten that process. However, it sometimes happens that, after formation of matter, the absorption of it takes place when least expected; and this event not unfrequently occurs under the application of a poultice, which has perhaps been applied with a view to expedite the "maturation."

If this disposition to absorption be not observed in a day or two after fluctuation is perceptible, the sooner the abscess is opened the better, for the irritation from the distended integuments is considerable, and especially if the formation of

matter has been rapid. An opening to evacuate the matter should be made early, because, if allowed to accumulate, the skin becomes diseased to a considerable extent, and a large sore is formed.

In laying open a bubo, it is better to make a tolerably large incision than simply to puncture the skin with a lancet. With the latter method, I have always observed the cure to be tedious; the orifice is liable to close, hence the matter accumulates, and a further destruction of skin ensues; the secretion, too, continues for a much longer period than when a free incision is made; because, in the latter case, so much irritation is produced that the secretory surface is destroyed, and granulations are formed. After opening the bubo, it is advisable to continue the application of poultices for three or four days, and then to use a mild astringent lotion, with pressure effected by strips of plaster, through which an opening should be left for the discharge of matter.

When a bubo is large, and of a soft, indolent character, it is better to effect an opening by caustic than by incision; for it will often happen that the incision in such cases excites great inflammation, whilst the caustic not only produces less irritation, but, by destroying the redundant skin, greatly accelerates the cure. The fused potash is the best kind of caustic, and it should be rubbed over the part till an eschar is produced, and the next day this eschar may be punctured with a lancet.

In scrofulous constitutions, the whole chain of

glands occasionally becomes enlarged, in consequence of the irritation of a primary sore; and when they suppurate, are apt to be extremely tedious, and to form two or more abscesses in succession. The employment of the caustic in discharging the pus is here infinitely to be preferred, either to the lancet or spontaneous bursting. In the treatment there is no peculiarity; but in such cases the beneficial effect of sea-air and bathing is well known.

It occasionally happens that when a bubo suppurates, a sinus remains after the other part has healed. This may be often cured by an injection composed of two grains of oxymuriate of mercury to an ounce of water, or the undilute tincture of cantharides, which will generally bring on adhesive inflammation. If these should not succeed, we must depend on the use of a seton, or on laying the sinus open.

When there is much surrounding hardness, with numerous sinuses and irregular jagged edges, the treatment is as follows:—cut off the edges with a scalpel or sharp scissars, lay the sinuses open by means of a bistoury, and sprinkle the surface with some escharotic. In a few days sloughs will be thrown off, and granulations ensue, which, if too luxuriant, may be checked by the use of a solution of sulphate of zinc, and the proper application of pressure: the latter is, in various cases, a most important aid. It sometimes happens that a sinus penetrates so deeply that we may deem it unsafe

to follow it to its utmost extent with the knife; in this case we may attempt the cure by stimulating the edges.

We occasionally find that a gland projects after ulceration has taken place; in such an event, when the gland is insulated and rises above the surrounding surface so as to interrupt the healing process, it is best to destroy it by caustic, which generally brings on inflammation, the death of the gland, and its separation from the surrounding parts.

If mercury be continued whilst the bubo is suppurating, as soon as ulceration takes place the sloughing process will follow, and extend over a considerable portion of the cellular tissue. Destruction of life, in these cases, is caused in two modes; the patient either sinks under the irritation, or from hemorrhage caused by ulceration of the great vessels in the groin. We may have two opposite conditions in these cases. The first is characterized by a highly excited state of the system, and by acute pain in the part; the pulse is hard, and increased in frequency; the febrile heat and thirst are considerable; and a deep tinge of inflammation marks the circumference of the sore. Here, general abstraction of blood is called for, together with the strictest attention to regimen, and a brisk evacuation of the intestinal canal. The best local application is a fomentation composed of a strong decoction of poppy-heads; indeed the use of opium in any form to the surface of the ulcer generally gives great relief. These cases are usually met with where the agency of mercury has just

begun to show itself, which, together with the suppurative fever, creates a violent action,—especially in a vigorous habit.

The other description of case is of an opposite character. The constitution, previously enfeebled, in these instances is completely broken down; the pulse is weak; the sleep greatly disturbed; and there is every indication of debility. The mode of treatment is clearly indicated by the nature of the symptoms. If the local circumstances will permit, a change of air is of much importance; the exhibition of quinine combined with opium in such doses as to quiet the irritability of the habit, and, if possible, to induce sleep, will in general arrest the progress of the disease. The local treatment of a sore in this condition, though not to be neglected, is perhaps of less importance than a strict attention to the state of the constitution: heat in every form is beneficial, and a poultice of stale beer grounds is a very convenient and highly useful application. We must, both by local and general means, assist nature in her efforts to throw off the slough, and with this view we may apply undilute nitric acid; at the same time endeavouring to restore the secretions and support the patient by a generous diet. A saturated solution of the nitrate of silver may be used with advantage; dossils of lint, wetted with this lotion, should be daily applied to the surface and edges of the wound. The lotion of calomel with lime-water may be used after the sloughs are separated.

Much has been said and written about the ex-

hibition of mercury in cases of bubo: as far as my experience goes, I have no hesitation in decidedly stating that in every condition of bubo it is entirely inadmissible. The treatment of bubo, as I have before remarked, is not to be influenced by the consideration, founded on sheer hypothesis, that the glandular enlargement depends upon the absorption of a specific virus.

CHAPTER III.

SECONDARY VENEREAL AFFECTIONS.

The constitutional affections, which occasionally succeed to the venereal ulcerations just described, take place from three weeks to six months after the removal of the primary symptoms. They consist in eruptions of the skin; affections of the fauces and contiguous parts; inflammation of the iris; and thickening of the periosteum.

There is no essential character appertaining to the cutaneous eruptions; they are analogous in their general appearance to those diseases affecting this texture which arise from other causes. For practical purposes it will perhaps be sufficient to treat of them under the four following orders of Dr. Willan's classification; viz. Papulæ, Pustulæ, Tuberculæ, and Squamæ.

The affection of the fauces, &c. which takes place in conjunction with these several orders, will be found to possess more or less of a distinct character.

Sect. I.—*The Papular Eruption.*

This form of eruption is for the most part preceded by fever, attended with pain in the head, shoulders, and larger joints; and sometimes with pain in the chest and considerable dyspnœa. The spots are most numerous on the forehead, chest, and back, and are scattered over the extremities. Occasionally they are very little elevated above the surface of the skin, indeed sometimes so little that

it is necessary to pass the hand over the surface in order to detect them; at other times they are decidedly prominent, and contain an opaque lymph.

The febrile derangement does not cease on the appearance of the eruption, but exists as long as successive crops of the eruption continue to appear, and is usually accompanied with pains of the large joints, most severe at night.

The colour of the papulæ varies from pale red to deep crimson; and some of them are simply pimples, while others appear to be pustules. The papulæ, as already observed, do not make their appearance together, but follow each other in successive crops; so that on the same patient, at the same time, some will be, in their commencement, like mere spots; others will have arrived at maturity, being larger, with acuminated tops, and containing pus or lymph; and others again will be on the decline, consisting of exfoliations of the cuticle. The papular affection, in its desquamating stage, is often mistaken for a disease originally squamous. It is, however, of importance to distinguish between the different affections; and this we may do by close attention to the history of the disease, as well as to present symptoms.

There is usually a kind of passive inflammation of the conjunctiva attendant upon the papular eruption, but it seldom requires any exclusive attention, the increased vascularity subsiding with the febrile derangement.

Soreness of the throat is one of the most frequent concomitants of this eruption. The patient

experiences difficulty in deglutition, with a sense of dryness, and on examination, the entire fauces, but more particularly the back of the pharynx, exhibit an erythematous appearance, and not unfrequently there is considerable swelling of the tonsils, which assume an irregular appearance, and have a depression in the centre often mistaken for ulceration. The glands of the neck also often swell and ulcerate, but more frequently when the eruption is on the decline.

The eruption, after having wholly faded, will, in some few instances, return at uncertain intervals of from two to several weeks; each successive crop being less than the former, and attended with less constitutional derangement. The intervals between those attacks are also greater as the disease exhausts itself or yields to the powers of the constitution. But if the progress of the disease have been interrupted by mercury before arriving at its latter stages, it becomes more obstinate and complicated than it otherwise would have been.

If mercury be exhibited on the first appearance of the eruption, and while there exists considerable fever, with severe pains of the joints—symptoms which demand the use of the lancet—the patient is, in general, rendered much worse, the fever is increased, and the pains become more severe. But if the exhibition of mercury be postponed until the fever has subsided, and be then commenced and carried on to some extent, it will be found that although the eruption will disappear, a new crop will, after a short time, be produced, with

increase of pain in the joints. The only condition under which mercury is admissible is in the desquamating stage of the complaint, when it is to be given as a mild alterative combined with antimony; but we must bear in mind, that although it is highly useful at this stage in many instances, it is not essential to the cure.

In the treatment of the papular affection we must, in the first instance, pursue an antiphlogistic plan, modified by circumstances; and when the febrile derangement has subsided, the compound decoction of sarsaparilla should be given in conjunction with antimonials. A generous but not stimulating diet should be allowed, and the patient should be placed in a dry situation, in pure air, and especial care should be taken to guard against exposure to cold.

Sect. II.—*The Pustular Eruption.*

Another form of eruption, the result of venereal poison, is that of phlyzacious pustules, which terminate in superficial sores covered with thin scaly crusts.

In this affection, as in the former, we observe a co-existence of different stages in the same patient; there being at one part of the body newly formed pustules, whilst others are in their scabbing stage, with an intermixture of small ulcers, the crusts of which have fallen off, and of discoloured patches of skin where healing is perfected.

In this state there is nothing more efficacious for cleaning the skin than sulphureous fumigations.

Baths impregnated with sulphuret of potass, or the nitro-muriatic acid baths are also useful, but not equally so with the sulphureous fumigations. Smearing the affected parts with equal quantity of tar and sulphur ointment is also serviceable. With these applications the internal exhibition of antimonials and sarsaparilla must be conjoined.

The general mildness of the eruption, and of the ulcers which it produces, sufficiently point out the difference between this affection and the one next to be described, in which the crusts are thick, and the ulcers spread with phagedænic margins.

Sect. III.—*The Tubercular Eruption.*

This species commences with an eruption of tubercles, or of pustules, or both intermixed, attended with considerable febrile derangement. Ulcers are then speedily formed, which are covered with a thick crust, and which usually heal in a peculiar manner from the centre, while at the same time they extend at their circumference with a phagedænic margin. The fever, by which the eruption is preceded, abates, but is not altogether removed on the appearance of the eruption. Sometimes it happens that the patient complains of being generally unwell, for some time previously to the eruption, without being able to state any particular symptom to account for his indisposition; a sense of weariness is felt, and we may remark a pallid countenance and languid eye; in other instances there are severe nocturnal headaches, with tenderness of the scalp and pains in the limbs.

The ulceration of the throat which accompanies the tubercular species is of a most formidable nature. We first perceive a small, aphthous-looking sore, usually of an oval shape, situated on the velum, or back part of the pharynx; it sometimes, but more rarely, commences in other parts of the throat. However, if the disease be not checked in its progress, wherever it may arise, it will rapidly spread over the whole of the pharynx; extending upwards, the mucous membrane of the nares becomes affected, and this is often followed by caries and exfoliation of the spongy bones. The ulcer in its progress towards the mouth also affects the tonsils with a similar ulceration; and seizing upon the velum and uvula, rapidly destroys them.

If the disease should extend to the larynx, of which I have seen several instances, there will be but little chance of saving the patient's life. We have in this case stridulous voice, constant cough, and copious expectoration of viscid matter, attended with great difficulty of deglutition, restlessness, anxiety of countenance, emaciation, night sweats, and a rapid pulse.

When the epiglottis becomes implicated, it is no longer capable of performing the office of a valve, and in consequence, foreign bodies slip into the trachea when the patient attempts to swallow, and excite violent irritation and fits of coughing which threaten life: sudden death, indeed, does sometimes occur from this cause. In general, however, the patients linger many weeks, and at length sink exhausted.

The extension of the ulcer to the nares may be suspected if the patient's breath become offensive, with an obstruction of breathing through his nose; and amounts to certainty, if a foul discharge, occasionally tinged with blood, come from the nostrils. The first symptom complained of is a dryness of the nostril from want of the proper secretion, then it becomes painful, and is succeeded by a discharge at first thick like that from the throat, but subsequently bloody, and at length copious and very fœtid. Under these circumstances exfoliation will take place, and of course produce more or less deformity.

At the same time that the patient is affected with this eruption and ulceration, he is in general subject to severe pains in the large joints, especially the knees and ankles, which often manifest signs of inflammation, being red, swollen, hot, and highly sensible to the slightest touch. The affection of the knee is perhaps, on the whole, most frequent, and is usually attended with all the symptoms that indicate acute inflammation of the synovial membrane.

When the fever which precedes the eruption, or accompanies it, runs very high, attended with severe pains of the head, chest, and joints, general bloodletting may be had recourse to in proportion to the severity of the symptoms: aperient medicines and antimonial diaphoretics will, at the same time, be most useful auxiliaries. If the patient complain of severe pain in the head, which is a

very common symptom in this as well as other forms of venereal disease, a blister to the nape of the neck, or occiput, will often afford immediate relief. During this stage of the disorder, confinement of the patient to his room, and low diet with diluting drinks, are as necessary as in the treatment of any of the exanthemata.

If the fever be inconsiderable, or if it have been reduced, sarsaparilla, in as large doses as the stomach can bear, conjoined with antimonials, may be continued until the patient recover. The extract of sarsaparilla evaporated to a sufficient dryness to form a powder, which may be taken in milk, is an admirable preparation of this valuable medicine; the dose is from half a drachm to one drachm three times a day. The decoction of guaiacum given with pills of gum guaiacum and antimonial powder are sometimes useful, but are less so than sarsaparilla.

In the case of extensive irritable ulcers with phagedænic edges, great advantage may be derived from combining full doses of henbane with the sarsaparilla. In debilitated subjects, where the health is much impaired, and where foul and extensive ulcers have succeeded the tubercles, the nitrous acid conjoined with sarsaparilla is particularly useful.

In order to procure sleep, which is often prevented by the pains of the joints, there is no anodyne equal to the compound powder of ipecacuanha; and if the pains be severe during the day, it is useful to repeat the powder every sixth or

eighth hour, in lieu of antimony and in conjunction with sarsaparilla.

Under the foregoing plan the most alarming cases may be brought to a favourable termination in the course of from six to twelve weeks; but if mercury be injudiciously administered, many months, or even years, may be required to conquer a malady which is chiefly rendered formidable by the intended remedy. When the disease is on the decline, having in a great degree yielded to the powers of the constitution, assisted by the remedies already mentioned, mercury will be found extremely useful, but not till then. Here it is not advised with any view to antisyphilitic properties, but in order to induce a favourable change by improving the secretions generally. The internal exhibition of mercury, however, must be adopted with much caution, for it often happens that the mucous membrane of the stomach and bowels, either from sympathy with the morbid condition of the skin, or from the general breaking up of the health, is in a peculiarly irritable condition. The powder of chalk with mercury, or the compound calomel pill, may be given, but in the majority of cases it will be found, that frictions with very small quantities of ointment are most serviceable. In the decline of the disease, when the febrile derangement has ceased, and when the body is almost covered with a kind of scabby desquamation, warm bathing is of the most essential service.

The formidable and destructive ulceration of the

throat, which accompanies the tubercular eruption, requires the adoption of the most prompt and vigorous means. If the ulceration be of small extent, without much surrounding inflammation, any of the following local applications may be applied, by means of lint on the end of a probe, or a large pencil of camel's hair, viz.: oxymel of verdigris; solution of nitrate of silver, in the proportion of from six to ten grains to an ounce of distilled water; a solution of oxymuriate of mercury, in the proportion of from three to six grains to an ounce of water. Where there is much inflammation, leeches and counter-irritants should be applied externally, as in ordinary cases; but if the ulceration be considerable, occupying the entire fauces, and having already made great ravages, recourse should be immediately had to fumigations with the red sulphuret of mercury; or if the patient cannot bear the fumes of this preparation, fumigations of the powder of chalk with mercury may answer equally well. As soon as any amendment in the state of the ulcer is perceived the fumigations should be discontinued, in order to prevent the constitution from becoming affected by mercury; and thus the patient may receive all the benefits, and escape the dangers which mercury is capable of effecting.

In the Nose.—Means should be first had recourse to, to relieve the inflammation, and with this view leeches are to be applied. When there is an incrustation, the affected nostril may be well anointed

morning and evening with a liniment, composed of one part of the ointment of nitrate of mercury with three of olive oil. The nares may also be injected frequently during the day with a lotion, composed of half a grain of oxymuriate of mercury in an ounce of lime water; diluted nitric or muriatic acid may be used with a view of healing the sores and assisting the process of exfoliation; steaming the nose with hot water will conduce materially in separating the incrustations, and affords considerable relief to the patient. If we treat the disease before the bones of the nose have become affected, there will be no great difficulty in conducting the cure; but when these parts are implicated, very considerable difficulties will be encountered, and the most horrible deformities will frequently result. Sir Astley Cooper, however, with truth remarks, that "we are in general to consider these deformities, as the result, not of syphilis, but of the improper treatment of that disease. Under proper treatment, no person perhaps ever lost his nose from syphilis, but the instances are very numerous in which this loss has arisen from the abuse of mercury."

If these local remedies, conjoined with the internal exhibition of sarsaparilla, are found not to be productive of benefit, the fumigations of the red sulphuret of mercury, or of the powder of chalk with mercury, should be employed three or four times a day by means of a bent tube adapted to the nostril, and fitted to a common apparatus for fumigating the throat. The only circumstances

under which mercury is admissible internally are, when the ulceration manifests a long-continued indisposition to heal, or returns more than once, after having been healed. The best preparations to be employed in such cases are, the solution of oxymuriate of mercury, or the compound calomel pill, given in conjunction with sarsaparilla. A trial of these during four or six weeks will suffice, without extending the use of them so as to excite salivation.

If the bones become affected, they must exfoliate before the parts can possibly be healed, and this is necessarily a tedious process. And I may remark here, that it is highly important to prevent the great deformity which will ensue if ulceration take place through the skin externally; it is therefore advisable, from time to time, that a probe should be introduced to feel for the loose bones, which should be removed by a pair of forceps. The nose will be somewhat flattened, and there will necessarily be some deformity, but far less than ensues when the skin is allowed to give way at the upper part of the nose. Evaporating lotions may be employed with advantage when the skin is red and shining.

In cases of disease affecting the nose, it very often happens that the patient undergoes a mercurial treatment, and the sores appear to be cured; but when the mercury has been left off for a time, and the person has returned to his ordinary employments, he finds symptoms of the disease re-

curring in the nose, and having perhaps an offensive discharge, he again takes advice. Now, under such circumstances, it is frequently supposed that though the patient has undergone a treatment usually sufficient for the cure of the disease, yet there is still some lurking virus, and the luckless victim is doomed to a second course of mercury. This is not only unnecessary, but extremely injurious; for the disease of the nose arises from the process of exfoliation in an exposed portion of bone; and if the patient, time after time, be subjected to renewed courses of mercury, the most horrible deformities will often result. The mercury, so far from assisting the exfoliation, adds to the inflammation, and produces more extensive exfoliation. The practitioner is therefore to be upon his guard against treating a renewed discharge from the nose by mercury, on the supposition that it has not before been sufficiently employed.

When the bony palate is exposed, which may be easily felt by applying a probe to the part, the denuded bone exfoliates; a communication is formed between the mouth and nose; fluids return through it; the voice becomes nasal, and a discharge of a most offensive odour takes place. These are also in general the results of the injudicious exhibition of mercury; but it is of importance to notice here the existence of a disease which sometimes occurs in young persons, and which has no connexion with the use of mercury, or of venereal complaint.—This disease commences by an incrustation of the alæ

of the nose; the patient complains of a sense of weight in the head, and large crusts are formed in the nostrils; the periosteum is attacked by the disease; the bone becomes carious, and separates externally through the skin or by the nares. This is a most distressing complaint, often leading to great deformity, and to the ill-grounded suspicion of its being occasioned by venereal disease.

About two years since I was consulted by a gentleman of high respectability, the father of a fine healthy family, on account of this disease. He assured me most solemnly that he had had no venereal affection for twelve or fourteen years, and then but a slight sore on the glans; that since that time he had not taken mercury, and was, independent of the local affection, in good health. Several portions of bone had come away, the nose was already somewhat flattened, and there was still a discharge so offensive that he was compelled to smoke cigars in order to disguise the stench. As there were no indications to fulfil in respect to constitutional treatment, I contented myself with prescribing the use of the lotion of dilute nitric acid, to be injected into the nose several times in the day. Further portions of bone came away, and at length the disease subsided without any increase of deformity, and the gentleman now continues quite well.

Mons. Roux, of La Charité at Paris, in a case of division of the soft palate performed an operation for the purpose of closing the aperture on the same principle as that for hare-lip, and the attempt was successful. A similar operation has

been now repeatedly performed both on the continent and in this country, not always successfully, yet often enough to warrant the adoption of it.

Mercurial fumigations are the most efficient local means for sores of the palate; but if the roof of the mouth itself becomes affected, a little dilute muriatic or nitric acid will assist exfoliation and prevent the aperture from becoming large. When there is an opening in the roof of the mouth a piece of lint may be inserted into it, which will obviate the nasal sound, so remarkable in speaking, and which excites suspicion. As soon as the exfoliation has taken place it will be right to introduce some permanent extraneous substance to fill up the aperture, for which purpose many ingenious means have been contrived.

In the Larynx.—When the disease extends to the larynx direct applications cannot of course be made. Fumigations of the red sulphuret of mercury may however be used; and it has been recommended to apply a strong solution of nitrate of silver; but as this cannot possibly reach farther than the epiglottis, I doubt the utility of it. One of the most obvious remedial means consists in the application of counter-irritants; but these are seldom productive of much or lasting benefit. Indeed, it must be confessed, that medical aid avails but little in such cases; the difficulty attendant on deglutition is so great that the patient is equally incapable of taking medicines and food.

There is however one expedient that has been

suggested to which I may here allude, namely, the operation of tracheotomy; but, although we should by this measure relieve the dyspnœa, there would be the same difficulty of swallowing. If an artificial opening be made it should be effected in such a manner as not only to permit the patient to breathe freely through it, but also to allow an easy passage for the discharge of mucus; for this purpose it is best to remove a portion of the rings of the trachea, either by the knife or scissors.

Inflammation of the knee-joint is an affection particularly frequent, in connexion with the tubercular eruption, and sometimes requires repeated local depletions by means of leeches. Warm fomentations and poultices generally afford more relief than cold applications; and when the activity of the inflammation is reduced, a degree of thickening often remains, which is lessened by the application of blisters, or of the ointment of tartarized antimony. In the event of other joints being severely affected, venesection may also be necessary. Generally speaking, there is no application equal to the ointment of tartarized antimony for the removal of chronic venereal pains; whilst, at the same time, the general or constitutional treatment already detailed, in conjunction with the use of the warm bath, should not be neglected.

Sect. IV.—*The Scaly Eruption.*

The scaly venereal eruption is frequently preceded by a cutaneous efflorescence of the whole

body, the skin having a mottled red appearance; in a short time the redness disappears, and the parts are covered with a scurf or scale. Before the eruption, there is often considerable derangement of the patient's constitution; the countenance is dull and pallid; and he complains of restlessness, want of sleep, and headache. This eruption is usually most copious on the forehead, breast, back of the neck, on the groins, and adjoining surfaces of the pubes. There is some variety in the manner in which the palms of the hands or soles of the feet are affected, as contrasted with other parts: the cuticle separates, and is quickly succeeded by another; and this process may be several times repeated, for the thick skin of those parts has not the same disposition to form scurfs as the common skin. Again, when the eruption affects a skin which, from being opposed to another skin, is kept moist, and also constantly rubbed, as, for example, the cleft of the nates, instead of scales, there are elevations of the skin, with a soft, flat, or somewhat convex, surface, which discharge a whitish matter. If the eruption proceed to ulceration, it is by the scales being thrown off and succeeded by others, and each succeeding scale which is formed becoming thicker than the preceding, at length a crust is formed, under which matter is collected.

In the ulceration of the throat which attends the scaly eruption, the tonsils are in most instances the parts affected. The ulcer forms without much previous pain or swelling, and accords with the description given by Mr. Hunter, as characteristic

of what he considered a true venereal ulcer. There is a "fair loss of substance," as if a portion were dug out from the body of the tonsil, with a determined edge, and the excavation is usually foul; thick white matter adhering to it, like a slough, and not readily separable.

In the treatment of the scaly eruption, mercury, exhibited as an alterative, is highly useful. The affection of the skin will begin to fade even before there are the general evidences of the activity of it; and ulcers of the skin and throat, as soon as those evidences are apparent, assume a healthy and granulating aspect, and quickly become cicatrized. The same good effects are also observable in the soft elevations of the skin which are found between the nates, under the scrotum, and in the axilla: the ulcers of the tonsils also immediately amend. With respect to the time in which it is necessary to exhibit mercury, the disappearance of the symptoms must be our chief guide. As far as my experience shows, I would say that it does not appear to be at all necessary to continue the remedy after this purpose has been fairly and entirely accomplished; nor can any stated time be fixed with precision for the discontinuance of it.

There are many medicines the administration of which may be usefully combined with mercury; and, of these, none is a more valuable auxiliary than sarsaparilla. Like many other useful medicines, it has been alternately over-rated and disparaged; at one time extolled as a specific for

venereal complaints, and at another time condemned as totally inert. But I am fully convinced, from extensive observation, that it does exert a most beneficial influence under certain circumstances. In the cases under consideration it is especially useful; when mercury alone disagrees and appears to excite rather than allay the hectic already existing, the conjunction of sarsaparilla seems to soothe the irritation of the system. The best form of administering it I have already alluded to, namely, the powder of the extract.

The diet in these cases should be of a nutrient, but not of a stimulating, kind. Milk, when it can be obtained pure, may constitute the principal article of food.

Sect. V.—*Iritis.*

Iritis frequently shows itself in conjunction with the various constitutional signs of venereal disease, which have just been described. It may and does exist as a purely idiopathic affection, or in connexion with other diseases, as gout and rheumatism; but it is most commonly met with accompanied by eruptions, pains in the limbs, and sore throat. There are certain characteristic appearances of inflammation in this membrane which are present under all circumstances; and of these the most remarkable, and often first observed, are, change of colour of the iris and dulness, with intolerance of light, and profuse lacrymation. As the disease proceeds, the pupil becomes irregular, with a serrated or fringed margin, resulting from deposit of

lymph; there is very considerable pain in the eyeball, extending to the temples and forehead; lymph is poured out in abundance; adhesion takes place between the iris and capsule of the lens; the pupillary aperture is sometimes completely closed, and the iris pushed forwards. In some instances the inflammation extends beyond the iris, and rapidly implicates all the adjacent parts, so as to lead to extensive suppuration and complete derangement of the organization of the whole eye.

Although, as I have already remarked, the general character of iritis is the same whatever may be the exciting cause, and the termination of it, if unsubdued, precisely similar, yet there are some shades of variety to be observed. Mr. Travers says, that primary inflammation of the iris, as, for example, that arising in the progress of venereal disease, is distinguished from secondary iritis, or that which results from continuity of inflammation with the conjunctiva, by the more sparing vascularity of this membrane in the former case, and consequently more conspicuous appearance of the vascular zone at the margin of the cornea. The same author also states that the attack of primary iritis is more sudden; that the pain commences with the inflammation, and is more severe; and that vision is more quickly and completely dimmed. My own experience leads me to a different conclusion, for I have witnessed very many cases of iritis conjoined with the indications of constitutional venereal disease, and I have observed that the disease has very far advanced without the patient being

cognizant of it, and the attention at length has only been drawn to it by the defective state of vision. But, when the iris has been secondarily affected from rheumatic or arthritic inflammation of the sclerotic coat, then I have observed intense pain from the commencement.

The treatment of iritis must be commensurate with the activity of the disease. If the symptoms be of a high degree, and the patient be plethoric, the antiphlogistic method must be put in full force. General blood-letting may be had recourse to, or, what is far better, the free abstraction of blood from the temples by means of cupping; at the same time antimonials may be given in nauseating doses, due attention being paid to the state of the bowels and to the regimen. In a less degree of inflammation, and with a debilitated subject, less active means will of course suffice. The pupil should be kept in a state of temporary dilatation by the application of belladonna to the brow: large blisters on the nape of the neck are often serviceable.

Reflecting on the many dreadful consequences which result from the administration of mercury in the treatment of venereal disease, I cannot reconcile myself to the immoderate use of it in cases of iritis, coexistent with what are designated secondary symptoms of syphilis. I admit the power of mercury in arresting acute membranous inflammation, and likewise in promoting the absorption of effused lymph; but I am also aware that acute iritis may be successfully treated by vigorous antiphlogistic

means; and that where it occurs in a chronic and insidious form, local depletion having been neglected, and the disease allowed to proceed to effusion, this may be remedied without subjecting the constitution to urgent or extreme influence of mercury. Moreover, there are not only many states of constitution which forbid that medicine, but also in many instances the local disease itself is aggravated by the use of it. In such case we have not an alternative, and may therefore consider ourselves fortunate in being able to proceed effectually without mercury.

Sect. VI.—*Periostitis.*

Inflammation of the periosteum sometimes occurs as a sequel of venereal disease, but it is in those cases where mercury has been exhibited--at least such is my belief founded upon ample means of judging—and such is the testimony of the army surgeons, who had a still more extended field for observation. It would be tedious to embark in controversy, and to examine conflicting opinions on this subject; I will, therefore, confine myself to a statement of facts. In the first place, I repeat the assertion, that I have never witnessed the occurrence of a node after a venereal sore on the genitals unless mercury had been exhibited; secondly, I have observed nodes to follow the use of mercury when employed for other complaints than venereal disease.

We find in various authors the expression, "true venereal node," yet we nowhere meet with a de-

finition of a "*true venereal node.*" In truth, there confessedly are no sensible characteristics by which "venereal nodes" are to be distinguished; but we are to jump at the conclusion that the swellings have a venereal origin, because the patient has had a primary syphilitic ulcer!

It is scarcely necessary to enter into a detail of symptoms indicative of inflammation in the close coverings of the bones. Pain and tenderness precede a swelling, for the most part on the long bones; and it is remarkable that the pain is invariably aggravated towards evening: this exacerbation, however, is common to all periosteal enlargements. The swelling is at first somewhat soft, gradually becomes harder, and there is evidently a deposit of cartilaginous or bony substance, which increases in extent as the disease proceeds. If a section of the tumor be made, we find the periosteum very much thickened, a layer of cartilaginous matter closely adhering to the surface of it, and an osseous crust upon the bone.

The flat bones are less frequently affected than the cylindrical bones; but of the former, the os frontis is that in which the disease is generally seen. Nodes now and then occur on the parietal bones, very rarely on the os occipitis, and never on the os temporis. The symptoms are the same as those of nodes of the shins or arms. The patient has pain in the evening, which lasts till two or three o'clock in the morning, when it subsides, and thus continues, day after day, till an enlargement of the bone takes place.

In the treatment of nodes we must be guided by circumstances: where there is great tension and redness of the skin, leeches should premise a repeated application of blisters over the part affected; the patient should at the same time keep his bed, and diaphoretics should be given, especially the compound powder of ipecacuanha. When the bone has become diseased, which will often happen from the exhibition of mercury during the existence of periostitis, then the treatment becomes complicated. If ulceration have taken place, the best application will be diluted nitric or muriatic acid, which will not only assist exfoliation, but correct the fœtor of the discharge.

In the treatment of periostitis it is most desirable to promote absorption, but when we find fluctuation, accompanied by redness of the skin, the sooner an incision is made down to the bone the better. The subsequent exfoliation is greatly expedited by this means, and in fact the extent of it limited; for if we delay an opening, the degree of surface affected becomes far more considerable.

It will occasionally happen, when the frontal bone is attacked, that a suppurative process takes place between the dura mater and the internal table of the skull, and death sometimes ensues from this cause; of which I witnessed a melancholy example, a few months since, in a lady, who had been under the treatment of a notorious empiric. It has been recommended, in such cases, to trephine the patient, and thus give vent to the confined matter;

and I proposed it in the case alluded to, where there existed symptoms of pressure on the brain following long continued pain, and swelling at a certain part of the frontal bone; but the patient was so far exhausted by long continued suffering, that her friends refused assent.

CHAPTER IV.

DISEASES WHICH MAY OR MAY NOT ORIGINATE FROM SEXUAL INTERCOURSE.

SECT. I.—*Phimosis.*

THE term phimosis is applied to that condition of parts when the prepuce cannot be drawn back so as to uncover the glans penis; and though it occasionally exists as a connate affection, is in general the consequence of inflammatory swelling;—hence the distinction of *accidental* and *congenital.*

The exciting causes of the inflammatory turgescence on which phimosis depends are various:—simple excoriation from want of cleanliness; the presence of venereal sores on the inner surface or edge of the prepuce, or upon the glans itself; and gonorrhœa, may perhaps be enumerated as the most frequent. In fact, any irritation about the glans or prepuce is capable of producing phimosis, for not only does the lax and abundant cellular tissue of the penis peculiarly dispose it to inflammatory œdema, but we must also take into account the depending position of the organ, which favours the ingress, and of course in the same proportion retards the egress, of the blood. It has been stated that phimosis occasionally results from the swelling of the glans penis alone, under inflammatory congestion, as in the case of a severe gonorrhœa

or sore upon the glans. Without denying the possibility of such an occurrence I would simply remark, that in my opinion it is very rare, for although it is undoubtedly true that phimosis does take place in conjunction with the circumstances mentioned, yet in every instance which I have witnessed there has been an extension of inflammation to the prepuce, to the immediate effect of which, rather than to the enlargement of the glans, the difficulty of retracting the foreskin was referrible.

The appearance of the parts under inflammatory phimosis depends, in a great measure, on the extent of disease; the tumefaction in one case may be slight and the integuments nearly of a natural hue, whilst in another we shall find the whole organ prodigiously enlarged, with the skin of a dark red or purple colour, and the end of the penis having a clubbed appearance, owing to the partial inversion of the prepuce. At other times the prepuce will be found greatly elongated over the glans, even to the extent of two or three inches, and terminating by a narrow orifice. Again, in some cases the constriction is confined to a narrow band, which may be felt, of almost cartilaginous hardness, passing completely round the foreskin near to the anterior opening.

The consequences which ensue from inflammatory phimosis, neglected or unchecked by active means, are those which in general result from inflammation in any other part of the body. Gangrene, however, far more frequently occurs than suppuration, and not only does the sphacelating process affect the integuments of the penis, but

the organ itself often becomes implicated, so that it is not unusual for phimosis to end in an entire or partial separation of the glans as well as a large portion of the teguments. It rarely happens in cases of inflammatory phimosis that a regular and defined abscess takes place; sometimes we see that when there are sores behind the glans, and the secreted matter, from the swollen and inverted state of the foreskin, cannot make its way forward, it accumulates behind the corona glandis and makes its exit by ulceration of the prepuce.

The formation of pus behind the suspensory ligament of the penis is a formidable and not unusual result of inflammation, and in such cases the pain is excessive, for owing to the unyielding nature of the ligament the entire penis is in a state of constant tension, and becomes indurated in an extraordinary manner. The integuments are of that dull red colour which indicates the presence of matter underneath, but no fluctuation can be felt, and the existence of matter can only be ascertained by attention to the previous symptoms; the pain and tedious obstinacy of the disease, the callous state of the penis, and the discoloration of the integuments. The matter, after some time, if not evacuated, usually makes its way through that part of the dorsum penis nearest to the pubes, where the ligament is less dense than elsewhere. But instances sometimes occur where the matter points over or above the pubes; and in the event of this there is a most extensive abscess. In the progress of the complaint the ligamentous texture may ul-

cerate or slough; in which case a large and foul ulcer will be produced.

In addition to these ordinary terminations of inflammation, there is another and not less serious affection; I allude to those cases where the swelling is so great as partially to compress and constrict the urethra, and thus cause a retention of urine. Under such circumstances the urethra sometimes gives way, and the urine is then extravasated into the cellular tissue, producing the most extensive gangrene. Extravasation of urine may also take place from ulceration of the prepuce with closure of the orifice from swelling, when some of the urine being lodged under the foreskin, by means of the ulceration becomes infiltered into the cellular tissue.

It is of importance to mention here, that under a state of inflammation, cohesion occasionally takes place between the opposing surfaces of the prepuce and glans, and thus constitutes a permanent phimosis. We should, therefore, cautiously bear in mind the possibility of cohesion in cases which we might be disposed to regard as inconsiderable, where there is matter issuing from between the glans and prepuce; and our means must be directed to obviate such result.

A morbid contraction of the prepuce has been observed gradually to take place in old people, without any obvious cause; and, in some instances, the constriction has gone on to such an extent that there has been an impediment to the passage of the urine. Diseases of the bladder and of the urethra

are stated to be the consequences: this affection, however, is, I apprehend, very rare.

It is not advisable in congenital imperfect phimosis to operate, unless great inconvenience be experienced in the discharge of urine, for the closest contraction in a young subject will often yield to bathing in warm milk twice or thrice a day, and endeavouring each time to draw back the prepuce, and to force the glans through it, which acting as a wedge, will, by perseverance, gradually dilate the contracted prepuce. But, if the prepuce be either so imperforate or contracted in an infant, that the urine cannot be voided at all, or without more or less pain and difficulty, the sooner an operation is performed the better. If, also, the partial constriction of the prepuce do not disappear at the approach of manhood, but continues to be a serious obstacle in the performance of the functions, for which the organ is then designed, the surgeon should not hesitate to recommend an operation. Where the tightness of the prepuce has not been very great, attempts have been made to effect the dilatation of it by mechanical contrivance, which have occasionally been successful; the plan, however, has generally caused much more pain than the use of the knife, and is, at the same time, tedious and uncertain.

There are two methods of operating for the cure of congenital phimosis. The surgeon amputates the whole of the constricted portion of the prepuce; or, he slits open the foreskin upon a director, by a

simple longitudinal incision, of more or less extent. In the majority of cases, the former practice is preferable.

Circumcision is performed by taking hold of the foreskin by forceps, or by the fingers, and drawing it forward; and then, by one circular sweep of the knife, the removal of the part is readily effected. If there be not sufficient length of foreskin to admit of being well drawn forward, we must first slit open the skin on a director, and then, taking hold of one part, must carry the incision round. The separation of the external and internal layers of skin is prevented by passing a fine suture through both edges: simple dressings are afterwards to be applied. There is seldom so much hæmorrhage as to require the use of ligatures.

The treatment of inflammatory phimosis must be regulated by those principles which guide us in the treatment of inflammation affecting other parts of the body, and the activity of our remedial means must be proportional to the severity of the local and constitutional symptoms. In order to the successful management of inflammatory phimosis, we must entirely divest ourselves of the notion of having a specific disease to contend with. If here we have variety in the appearance and character of the inflammation, as contrasted with inflammation occurring in other parts, it is to be referred to peculiarity of structure, which, as we well know, does modify the phænomena of disease.

In mild cases, where there is but slight tume-

faction of the prepuce, it will generally yield to injections of tepid water beneath the foreskin (taking care to keep the penis raised); to the application of cold lotions; evacuation of the bowels; observance of rest, and attention to regimen. With respect to the employment of leeches, I am by no means disposed to coincide with those who enjoin that they should not be applied immediately to the inflamed prepuce. I have never witnessed any evil resulting from their use; and, in fact, I prefer abstracting the blood directly from the affected part. We do not hesitate to adopt such a measure in the case of inflammation of other parts of the body; and I am not aware of any peculiarity attendant upon inflammation of the prepuce which precludes the application of leeches.

Under the foregoing means a recent case of phimosis will generally yield; but when the inflammation is of longer standing, and has increased to such an extent, as not only to threaten the destruction of the organ, but likewise to induce severe constitutional disturbance, it is imperative to employ the most active antiphlogistic treatment. General blood-letting may be practised, according to circumstances, so as to make a decided impression on the system; whilst to the swollen part leeches may be abundantly applied, or, what in some cases is still better, punctures may be freely made. From the latter method of treatment great relief is afforded to the engorged part, by the exit of serum and blood.

It is right to remark, that in very many severe cases of inflammatory phimosis, with which we have

to contend in this metropolis, general blood-letting is not admissible; for it not unfrequently happens that we are called upon to treat men of intemperate habits, who, having contracted gonorrhæa, pursue their ordinary employment with the penis in a pendulous position, drinking as usual, until a slight swelling attracts their attention; then, application is made to some empiric, who advises an abundant use of mercury. We have under these circumstances fever, with irritation, and a deficiency of vital power, which forbids the lowering of the system by general abstraction of blood; and such cases afford a striking contrast to those where inflammation occurs in a vigorous habit; as, for instance, in a hale countryman, with a constitution not depraved by intemperance, by late hours, and want of pure air.

It has been already remarked, that the parts under consideration are peculiarly disposed to gangrene from excessive action; and that not only is the prepuce itself liable to be destroyed to a greater or less extent, but the glans penis likewise suffers, as I believe, from constriction, and not from any action within itself. The possibility of the glans being implicated should therefore be constantly borne in mind, and measures should be taken accordingly. If a severe case of inflammatory phimosis be seen early, the antiphlogistic plan should be pursued according to the indication of symptoms; but, if the case have reached a later period before it is seen, or if it have failed to yield to the means employed, then it is advisable, without delay, to slit open the foreskin, so as freely to expose the

glans. It has been inculcated that no inflamed part should be cut, and especially an inflamed prepuce; the success in treating diffuse inflammation of the cellular tissue of the limbs, by free incisions in the onset of disease, affords ample refutation to such a dogma applied *generally*, whilst my own experience in the benefits derived from pursuing the practice in cases of phimosis, shows the absurdity of the *particular* application of the rule. The following case affords an excellent exemplification of the truth of these remarks:

F. R., twenty-five years of age, a robust man, and accustomed to drink freely, contracted a gonorrhœa about a month before application to me. A few days previously, having been living intemperately and taking much exercise, his whole penis became red and intensely swollen, and much constitutional disturbance ensued. I found the prepuce very much enlarged, and the redness extending more than half along the penis; matter flowed freely from between the glans and prepuce, but the swelling was so great that it was impossible to see the glans. The pulse was quick, sharp, and at the same time somewhat full, the tongue furred, and skin hot. Blood was abstracted from the arm to the amount of twelve ounces, a saline purgative administered, the part scarified, and a poultice applied. On the following day there was less fever, but the appearance of the penis was much the same, and upon pressing over the glans a bloody sanies issued. I now resolved on laying open the prepuce at its upper part, and this was accom-

plished by means of a bistoury. The glans was of a very dark colour, and had evidently suffered from strangulation; considerable bleeding ensued from the incision. On the third day, the parts were materially improved; the glans was of its natural colour. On the fifth day, the edges of the divided prepuce began to suppurate, and from this time the parts went on gradually healing, so that at length when the cure was completed but a slight cleft remained in the foreskin.

If the operation for dividing the prepuce had not been resorted to, I have no doubt that the glans would have been destroyed; and not only were the good effects of the practice obvious as to the glans, but also as regards the inflamed integuments.

In cases where a livid discoloration marks the near approach of gangrene of the integuments, it is often arrested by a free incision, and even where sloughing has actually begun it is advantageous to divide the prepuce, as by this means we are better enabled to apply local remedies.

When gangrene has already taken place to a considerable extent, and the surrounding parts are free from inflammation, when in fact, if I may so speak, the disease has spent itself, we must proceed upon the ordinary principles of assisting nature in her efforts to cast off the dead parts. The lotion of dilute nitric acid gradually increased in strength, with stale beer-ground poultices, forms an excellent application. The general health is at the same time to be supported by the exhibition of

quinine, and wine or porter, with animal food, according to circumstances. But it may happen that we shall find actual gangrene to have taken place only to a limited extent, while the state of the surrounding parts clearly indicates a near approach to the same condition, the general excitement being still considerable. In such a case it will frequently be possible to arrest the progress of gangrene by antiphlogistic means; it does not follow, therefore, as a matter of course, that when a slough has taken place we are at once to set about promoting the separation of it.

In the course of sphacelus of the integuments, hæmorrhage not unfrequently takes place, and the bleeding will sometimes proceed to an alarming extent. Oil of turpentine applied warm will be found one of the best styptics on such occasions.

Retention of urine from compression of the urethra and extravasation of urine consequent upon ulceration of this part, have already been pointed out as occasionally attending inflammatory phimosis: it is scarcely necessary to say, that such events are most embarrassing. When the retention is urgent, the prepuce must be at once slit open, and every means employed to unload the engorged parts, which press upon, and for the time obliterate, the urinary canal. A small, elastic gum catheter should be introduced and retained in the bladder, by which means ulceration of the urethra will be prevented. If extravasation have already taken place from ulceration of the urethra, free incisions should be made in the

integuments of the penis, in order to evacuate the irritating and destructive fluid; and to prevent further effusion the catheter must be constantly worn. Where extravasation arises from the circumstance of infiltration into the prepuce by means of ulcers on the internal surface, the treatment is obvious; the prepuce must without delay be laid open. As the lodgment of urine within the prepuce, when the mouth of it is closed by inflammatory swelling, is not an unfrequent occurrence, we have an additional reason for adopting the mode of treatment which I have throughout endeavoured to inculcate as being applicable to a great majority of cases;—the division of the prepuce.

In cases of chronic and confirmed phimosis, having slit the prepuce, it is to be carefully dissected from the glans, and the recurrence of adhesions prevented by interposing a portion of lint. When the adhesions are so extensive and so firm that it is not possible to introduce an instrument between the prepuce and glans, it will be more prudent to refrain from attempting the separation, as the operation then becomes not only extremely difficult to the surgeon, but is attended with excessive pain to the patient. Richerand states his conviction from experience, that the operation for phimosis in adults is always ineffectual, when the glans and prepuce cohere.

Where a pipe-like contraction of the prepuce exists, all the narrow constricted part may be cut

off; and where the mass of the prepuce is enlarged and the end contracted, then by circumcision the phimosis may be cured, and a superfluous portion of the foreskin at the same time removed.

Sect. II.—*Paraphimosis.*

Paraphimosis is that condition of the prepuce when being retracted it cannot be returned over the glans: in this case it acts as a tight ligature applied behind the corona, and hence the term paraphimosis, or circumligatura.

Paraphimosis may be induced by a naturally constricted prepuce being forced over the glans in difficult sexual intercourse; and Heister, in alluding to this accident, offers some remarks on the unjust suspicions which may in consequence trouble a newly married man respecting the chastity of his wife. The constriction of the prepuce firmly embracing the body of the penis, a return of blood from the glans, as well as from the portion of the prepuce anterior, to the stricture is impeded; œdematous inflammation supervenes, and if the strangulation be excessive, death of the parts will speedily ensue.

Although paraphimosis does not unusually occur under the circumstances mentioned above, yet it more frequently happens when the prepuce is already in a state of inflammation. In cases of incipient phimosis, the patient being induced to draw back the foreskin with a view of examining the glans, finds that in consequence of the swelling he is unable to replace it, and he thus produces an

opposite state of parts—paraphimosis in lieu of phimosis.

It is important to mention, that paraphimosis may occur from circumstances unconnected with sexual intercourse. I have seen several instances in schoolboys who have, in sport, drawn back the foreskin and then were unable to return it. A few months since I was called to a very severe case of this nature, where, under the influence of shame, the disease had been concealed so long that gangrene had commenced.

In the treatment of paraphimosis, the object we have in view is to relieve the stricture behind the glans as speedily as possible, and this may be effected in three ways: by compressing the blood out of the swollen glans so as to admit of the constricted prepuce being drawn forward by the fingers; by lessening the bulk of the inflamed part under the use of topical blood-letting and cold applications; and by the division of the stricture.

The usual directions given for the manual process are, to push back the glans with the thumbs whilst with the fingers the prepuce is drawn forward. This is an awkward method, by no means well adapted to the end proposed, and succeeds only by accident. The glans penis is in its natural situation, the prepuce is not, then why push back the glans? Indeed the difficulty is increased, since the base of the glans is enlarged by pressing the body backward. The object is to di-

minish the size of the glans, particularly at the base, so as to allow the displaced prepuce to be slipped over it; and this indication is best fulfilled by grasping the glans with the fingers and thumb of one hand, gently compressing the circumference of the base, at the same time drawing it somewhat forward, whilst the other hand is employed to draw the prepuce forward. I have usually found much advantage in rendering the hand very cold, sometimes even by artificial means, before the process.

When there is much inflammation, the reduction by compression cannot be effected, the parts being so painful that the patient cannot endure the necessary handling. Cold applications under such circumstances are highly serviceable, together with the application of leeches, or free scarification of the part, taking care to promote the flow of blood. However, if the symptoms be urgent, division of the stricture must be effected. In many instances this is difficult, as the narrow opening of the prepuce usually lies like a tight cord in a depression extending round the penis, while the parts on each side are so much swollen that it is almost impossible to reach the stricture. The best way of performing the operation is to gather the skin of the penis into a fold, close behind the stricture, and then to cut through the part which is raised. A small, blunt-pointed director is next to be introduced through the wound into the cellular substance and carried forward under the constriction, until the extremity of it can be plainly felt on the side towards the end of the penis, when by cutting

into the groove of the instrument the stricture is divided.

After constriction has thus been obviated, the prepuce cannot always be immediately returned over the glans; and, perhaps, in cases where the operation has been absolutely necessary, it is never at once practicable. From the moment that the operation is finished, however, the symptoms begin to subside; and as soon as inflammation and swelling have entirely disappeared, the prepuce will fall spontaneously over the glans. I have known cases where the glans was near dropping off, after several days' neglect, yet the stricture being merely divided, and application of the hands avoided, the parts recovered, and the prepuce gradually regained its situation.

Sect. III.—*Excoriation.*

This complaint, when recent, appears in irregular patches, accompanied by itching, an increased and altered secretion, and redness. If, however, the parts do not immediately heal, the secretion becomes purulent, and the abraded surfaces assume a yellow colour. It is in this, which may be called the ulcerative stage, that the disease generally falls under the eye of the surgeon; and there are then distinct, superficial sores, with plain surfaces, and most frequently of an irregular shape, though often inclining to an oval or circular form. Occasionally the prepuce and glans are separately affected; but where excoriation is extensive, these parts generally participate. Repeated and long continued

friction, and inattention to cleanliness, when there is an increased and vitiated secretion from the sebaceous glands, are the chief causes of this disease. Some persons are particularly liable to such diseased secretion; and it would seem to be frequently a consequence of derangement of the primæ viæ, brought on by intemperance. The most extensive excoriations, perhaps, arise from connexion while the glans and prepuce are in a state of irritation from neglect of cleanliness.

Buboes are very common in consequence of excoriations; and there has appeared a greater disposition in them to suppurate, where the primary affection was trifling, and free from pain and inflammation, than where both have been present to a considerable extent.

Excoriation may be confounded with the elevated ulcer in its earlier stage, when that disease appears in its mildest form, and is situated on the inner surface of the prepuce; also with the indurated ulcer, before it has assumed its characteristic mark; but, generally, the difficulty of diagnosis will, in neither case, last for more than a few days, and is of no practical importance, as the treatment in the commencement is similar. The best mode of distinguishing between venereal ulcerations and excoriation, is the time at which the disease comes on after connexion. The former do not appear immediately afterwards, and therefore if the sore, which we suspect to be merely an excoriation, is observed on the day after connexion, it is probable

the suspicion is well founded. Venereal sores are generally circumscribed and defined, whereas excoriations are diffused. Great difficulty, in deciding on many of the sores which occur on the genitals, arises from the applications used by the patients prior to applying for advice.

In the treatment of excoriations, especial attention must be paid to the state of the bowels, and to keeping the parts clean. A weak solution of acetate of lead, applied frequently as a wash, and kept to the part by a piece of lint dipped in it, is the best application in the early stage of the disease; or a lotion, composed of one part alcohol and three or four parts of water. When more advanced, and there appears to be an indolent action in the part, touching it with the sulphate of copper, or the nitrate of silver, will be often beneficial in quickening the cure.

CHAPTER V.

DISEASES WHICH DO NOT ORIGINATE FROM SEXUAL INTERCOURSE.

SECT. I.—*Herpes of the Prepuce.*

THIS is a very common affection, and is worthy of attention, as it occurs where it is liable to occasion a mistake of serious consequence to the patient. The progress of the herpetic clusters, when seated on the prepuce, so closely resembles that of venereal sores, as described by some authors, that it may be doubted whether they have not been frequently confounded.

In this disease the attention of the patient is attracted by an extreme itching, with a sense of heat in the prepuce; on examining which, one or sometimes two red patches are found, rather larger than a split pea; upon these are clustered five or six minute transparent vesicles, appearing, from their extreme tenuity, of the same red colour as the base on which they stand. In the course of twenty-four or thirty hours the vesicles extend, and become of a milky hue, having lost their transparency; on the third day, they are confluent, and assume a pustular appearance. If the eruption be at that part of the prepuce which in most individuals is extended over the glans, so that the vesicles are kept constantly covered and moist, they usually break about the fourth or fifth day, and

form a small ulceration upon each patch. This discharges a little turbid serum; and a yellow or white and plain surface is exposed, the shape of which is frequently angular and the edges abrupt; but sometimes a little raised, in which case the surface appears somewhat concave.

There is no disease more liable than herpes to be mistaken for a venereal sore, more especially if any irritants have been applied; for the base will then become much more thickened and inflamed, and the regular course of the vesicles will be interrupted. If no irritant be used, the slight ulceration continues till the ninth or tenth day nearly unchanged, and then begins to heal; this process is completed by the twelfth, and the scabs fall off on the thirteenth or fourteenth day. When the patches occur on the exterior portion of the prepuce, or where that part does not cover the glans, the duration of the eruption is shortened, and ulceration does not actually take place. The contents of the vesicles begin to dry about the sixth day, and soon form a small, hard, acuminated scab, under which, if it be not rubbed off, the part is entirely healed by the ninth or tenth day; after which the little indented scab is loosened and falls out.

Buboes occasionally form in this disease, but they seldom suppurate.

The exciting causes of this eruption are not very obvious. It is, however, a disease to which some persons are particularly subject, and has a great tendency to recur. It appears frequently to arise from derangements of the digestive organs, and

seems often the consequence of partaking of some particular kind of food or drink. It is also sympathetic with an irritable urethra, or an attendant on strictures of that canal. The disease is ascribed by Mr. Pearson to a previous use of mercury.

Discrimination of this affection from venereal ulcers, when the former occur on the external prepuce, is easy. Herpes can only be confounded with the elevated ulcer; but the appearance of herpes, first in a cluster of vesicles, while the other appears only as a single pustule, will be a sufficiently distinguishing mark, if this circumstance has been observed. The size and thickness of the scab will also lead to a right conclusion, being in herpes little more than a scale, but in the elevated ulcer generally of considerable size and thickness. Another important feature is, that in herpes the scab is of its full size at once, while in the other disease, there is for a certain period a daily increase in size and thickness. When herpes is situated on the inner surface of the prepuce, the patient's fears are most strongly excited, as it is surrounded for some days by a slight efflorescence, and sometimes by a little puffiness of the prepuce; as it does not scab when it occurs on that part; as the vesicles, when broken, form each a small circular ulcer, with a white or yellow surface; and as they sometimes run quickly one into another, while the healing process is tedious when interfered with. These circumstances have doubtless often caused this disease to be mistaken and erroneously treated;

but there is not the raised edge and surface which mark the elevated ulcer about the eighth or tenth day; and it is important to remark that the herpetic affection usually assumes an annular shape.

When the disease is situated on the external skin, allowing the sores to scab, and guarding them as much as possible from friction, by which irritation may be excited, or the scab rubbed off, is all that should be done. If, however, it be deemed necessary to allay irritation, a weak solution of acetate of lead, in the proportion of half a grain or a grain to an ounce of water, is all that ought at any time to be used; for whatever tends to interrupt the progress of this disease lengthens its duration. Unctuous applications should be most carefully avoided in the treatment of this variety of herpes; and accordingly it will be found, that where ulceration occurs within the prepuce it will proceed with less irritation, and its course will be brought within the period above mentioned, if a little clean dry lint alone be interposed twice a day between the prepuce and glans.

When strictures exist, or there is an irritable state of urethra, together with the treatment above described, the morbid condition of the canal must be removed, and thus the recurrence of herpes will be prevented.

Sect. II.—*Psoriasis of the Prepuce.*

This disease appears at the margin of the prepuce in the form of deep cracks or fissures, which

are painful, extremely irritable, and apt to bleed whenever any attempt is made to retract it. The discharge is of a glutinous nature until the morbid action ceases, when it becomes purulent; and then commences the healing process, which is often very tedious. It is attended with phimosis, and is apt to give rise to bubo. Want of cleanliness is, in general, the cause of this disease, which differs in no respect from that affecting the hands, lips, &c.

The ointment of nitrate of mercury, diluted with spermaceti ointment to half its strength, or the ointment of white precipitate of mercury, are the best applications.

SECT. III.—*Warts.*

WARTS are very commonly met with on the glans penis, and inner part of the prepuce. Any local irritation appears to have the effect of producing them; they often follow simple excoriation; frequently succeed to gonorrhæa; and, in a great many instances, seem to be excited by neglect of washing away the secretion of the glandulæ odoriferæ. Persons who have natural phimosis are especially subject to warts.

Warts prsent some differences in their appearance; they are simple and distinct, lobed or fissured, and confluent; under the latter circumstance, the clusters coalescing form such a mass of disease, that in some cases it is impossible to see the glans penis. There is a particular kind of flat soft wart, very frequently found on the body of the

penis, more especially on the under part of it; on the scrotum, and in the neighbourhood of the anus; it usually occurs in conjunction with gonorrhæa, and to persons who are uncleanly in their habits.

An erroneous notion formerly prevailed that warts were a venereal symptom, and patients were in consequence repeatedly salivated for the cure of them. Such practice is now by common consent abolished; for we know that warts are mere adventitious excrescences, and that mercury has not any influence over them. As a general rule in the treatment, we act upon the principle of stimulating them beyond their vital power, which is very weak; we therefore employ a powder consisting of equal portions of verdigris and savin leaves, which, when sprinkled upon them, generally effects a cure. Sometimes, however, it is necessary to have recourse to strong escharotics or the knife. When the upper part has become hard and insensible, it of course resists the action of mere stimulants, and in this case we may use the concentrated acetic acid, the muriated tincture of iron, the muriate of antimony, and the like. If the warts be very numerous on the glans penis, and attached by narrow necks, then it is good practice to cut them off with the scissors. For the cure of the soft, flat wart, there is no remedy so efficacious as a wash composed of the oxymuriate of mercury and lime-water.

Sect. IV.—*Phlegmon.*

Phlegmon of the penis is not by any means a

rare disease, and in some cases assumes a formidable character. Though most frequently occurring on the prepuce, it is found seated on all parts of the body of the penis. The symptoms of it are the same as when existing elsewhere.

During the state of suppuration, the prepuce is sometimes very greatly enlarged. On the body of the penis the abscess sometimes attains the size of a very large plum.

When the body of the penis is affected with phlegmon, evacuation of blood, cooling applications, and antiphlogistic regimen should be applied: by such means collection of matter may be prevented. When, however, the prepuce is affected, generally speaking, no efforts will avail to counteract suppuration or to resolve the tumour; for so disposed is this part to suppuration, that a day or two will be sufficient for the growth of a large abscess. The formation of matter should therefore be accelerated by fomentation and warm emollient poultices, and when fluctuation becomes perceptible, the contents should be discharged by a free opening. If, after dislodging the matter and the cessation of inflammatory symptoms, ulceration should not establish itself spontaneously, the entire covering of the abscess should be removed by the knife, or by fused potash.

Sect. V.—*Anthrax.*

This is an alarming and very dangerous affection, but happily not of frequent occurrence. I have

not myself seen an instance of it, but Mr. Evans relates two well marked cases. It so closely resembles the preceding disease, that it is only by the use of the lancet, or by the ulcerative or the sloughing process, discovering the contents of the tumour, that its nature can be detected.

This deception is particularly favoured in the advanced stage by the sense of fluctuation given to the fingers on examination of the tumour, and by the surrounding circumscribed and phlegmonous base; but when the lancet is used, instead of a flow of matter, only a few drops of blood and serum will escape, and either immediately after making the opening, or in the course of the following day, the diseased cellular membrane, which occupies the cavities of these tumours, and which is of a dirty yellow colour, will appear through the wound.

To distinguish this disease from phlegmon, previous to the commencement of ulceration, is happily of little importance.

In the treatment of this disease stimulating poultices will be found the most useful local applications; and, except that we should endeavour to prevent or to check any disposition to injurious sloughing, little else is necessary. To prevent or check the injurious action above mentioned, we should pay attention to the state of the bowels and skin; and, if febrile action be present, blood may be abstracted; but, in general, this disease occurs in broken-up habits, which require support. Early

openings, by making a vent through which the contents of the tumour may escape, will always greatly assist nature, by diminishing her labours and shortening the duration of the disease.

Sect. VI.—*Tubercles.*

Two kinds of tubercles are met with upon the penis as well as on the neighbouring parts. One of these is similar to the *moluscum* of Dr. Bateman; a circular and rather flattened tumour of the same colour as the surrounding integuments, of which it appears to be simply an elevation, but if a lancet be passed into it a cream-like fluid issues. The extent is variable, from the size of a pea to that of a shilling; and, unless they inflame, the tumours are not troublesome. They sometimes remain for years without exciting attention in the persons affected, by whom they are usually considered as warts; but when situated on the penis, and they become inflamed, they are apt to occasion bubo.

The mode by which nature removes these tubercles is by inflammation, which sometimes occasions them to shrink up and disappear, leaving the parts divested of cuticle. At other times they inflame, shrink up, and form dark scabs, which, falling off, leave the parts healed, excoriated, or ulcerated; in the latter case the ulcers occasionally prove troublesome.

The other affection of this kind has been observed both behind the glans penis and on the external skin of the prepuce. It is a small inflamed tumour, sometimes in form resembling the last, at

other times spherical, but instead of shrinking up from the inflammatory action in the same manner as the preceding, a small pustule arises in the centre, in the place of which, when broken, a scab is found, covering a cup which has been the lower half of the sac.

There is no disease with which the first of these complaints is likely to be confounded in its indolent stage. When inflammation has existed, and the tumour is removed, the excoriated part might perhaps be at first mistaken for the superficial ulcer; but the history, with the presence of other tubercles of the same kind, most probably in a state of inflammation (for generally when that action attacks one, it goes successively to the others), and particularly the rapidity of the healing process, will be sufficient to distinguish it. The second kind of tubercle might possibly be confounded with the elevated ulcer in its state of fungus, were it not that the elevated base in the former exists from the commencement, and on it the pustule forms, while, in the latter, the pustule precedes the elevation of the base and surface.

With the first disease, while in its indolent state, it is best not to interfere; but, in the event of its appearing expedient to comply with the patient's wishes, we must endeavour to excite inflammation, in imitation of the manner in which nature removes the disease. The constitutional symptoms consisting simply in slightly increased action, at-

tention to the bowels with gentle diaphoretics are sufficient. The local treatment will extend perhaps to the application of a little spermaceti cerate, or dilute ointment of the nitrate of mercury, to the denuded surfaces, and scarcely farther; and even in cases of deeper ulceration, the mildest measures are generally the best.

In the second kind of disease, after inflammation (which sometimes runs so high as to produce swelling of the prepuce) has subsided, in some instances it is necessary to destroy the base by repeated applications of caustic before the sores will heal; but on becoming level with the surrounding surface, they rapidly skin over.

Sect. VII.—*The Erratic Ulcer.*

It is rarely found that this sore occurs except in constitutions previously deranged by mercury, and in other cases considerable disorder of the general health universally accompanies it.

The erratic ulcer is generally preceded by a small pustule, which, on breaking, forms a crust or scab, and this, if permitted to remain, expands as the sore beneath it becomes enlarged. It is situated most commonly on the skin of the body of the penis and pubes; when on the body of the penis, it advances toward the pubes in a course somewhat serpentine or circular, often healing below while ulceration proceeds upward: the edge of the sore is generally somewhat elevated and tumid, and often everted. On the pubes it sometimes appears in distinct sores, extending themselves equally, or

nearly equally, on every part of the circuit: sometimes it proceeds in circles or rings, leaving sound portions about the centres; and, occasionally, healthy granulations are formed near the centre, when healing begins from that point.

It exhibits, after some continuance, morbid granulations, alternating with foul excavations, and is often exceedingly painful, and patients compare the pain to burning.

To distinguish the erratic from the elevated ulcer, it is enough to observe the progressive and continual ulceration; the alternating granulations and excavations; and the capricious directions of the sore in its course, or in its unequal dilatation; while elevation of surface will, in due time, distinctly mark the elevated ulcer. It cannot be confounded with any other disease of the genitals.

In treating this ulcer the following applications are most frequently found useful. A lotion composed of five or ten minims of nitric acid with a pint of water. Or half a grain to two grains of sulphate of zinc; or half a grain of subacetate of lead; or half a grain of nitrate of silver; or the like quantity of oxymuriate of mercury with one ounce of water. One drachm of the ointment of nitrate of mercury combined with three drachms of cerate of spermaceti is also sometimes beneficial.

Of all sores which take place on the genitals this is the most inconstant and intractable. No de-

pendance can be had on any single remedy from day to day; applications which promise much at first will become ineffectual in a very short time, and those which have before produced no good result will on second trial, without perceptible cause for such a difference, prove eminently and speedily advantageous. Hence may be inferred the necessity of paying strict attention to the general condition of the system, and to every indication by which we may be enabled to regulate the action of the digestive organs. Stimulating applications should be forborne, since they rarely or never have any good effect, and increase irritation by causing great pain.

Sect. VIII.—*Ossification of the Septum between the Corpora Cavernosa.*

The septum between the corpora cavernosa penis in some very rare instances has been found ossified, giving rise to an incurvation of the penis, rendering micturition difficult and painful, and entirely preventing sexual intercourse.

This state may be remedied by dissecting out the portion of bone, as was done in the following case by Dr. M'Clellan of Philadelphia.

A gentleman, fifty-two years of age, consulted Dr. M'Clellan for an incurvation of the penis upwards; micturition was extremely difficult and painful, and coition could not be effected. Upon attentively examining the parts the septum between the corpora cavernosa was ascertained to be quite ossified, so as to have the feeling of a long

narrow bone within the substance of the penis. This organ was peculiarly excitable, so that the slightest handling produced an immediate erection, in which state it assumed the form of a semicircular bow, with the concavity upwards. An incision was made along the whole length of the dorsum of the penis, and the indurated mass was dissected out entire by carrying the knife on each side of it down to the very back part of the corpus spongiosum. A copious hæmorrhage ensued, which was checked by sponge and cold water.

Sect. IX.—*Cancer of the Penis.*

We now come to the consideration of one of the most formidable maladies with which the human body can be afflicted. Cancerous disease usually commences in the form of a wart or small tubercle situated on the inner surface of the prepuce, and for a length of time it may not attract attention in consequence of its being covered, and not causing any uneasiness; as the wart increases, however, it becomes painful, and the pain is more particularly felt during coition. By degrees the tubercle enlarges, ulcerates, and causes much suffering, discharging a bloody and fetid matter; the ulcer extending attacks the glans and corpus cavernosum, which become changed into a fungous tumour, sometimes of very considerable magnitude.

At other times cancer commences as a small, hard tubercle situated on the glans, more particularly towards the base; the tubercle gradually and insensibly increasing, the glans and corpus caver-

nosum next become enlarged and hardened, and then the disease shows itself under the form of a scirrhous tumour of greater or less magnitude; ulceration at length takes place, the edges of the ulcer are hard and everted, and it discharges a fetid ichorous matter. Sometimes the swelling and induration of the glans are so considerable, that the portion of the urethra which passes through it and the orifice of the canal, are so much straitened as almost entirely to prevent the passage of urine. Boyer mentions having seen a case where the patient could pass his urine only by drops, and that with the greatest difficulty; the contents of the bladder were considerable, and it formed an apparent tumour reaching to the umbilicus. He amputated the penis; when, as soon as the urethra was cut, the urine gushed out with impetuosity, and the swelling of the abdomen disappeared. Under this form cancer of the penis makes less rapid progress and is attended with less pain than in the other kinds.

In whatever manner cancer of the penis presents itself, the disease, if neglected, proceeds, with more or less rapidity, even to the pubes; after a time the lymphatic glands, sometimes in one groin, sometimes in both groins, become enlarged. It is, however, worthy of remark that frequently a cancerous sore will continue for a long time without attacking the lymphatics in the vicinity.

Those persons who labour under a congenital or natural phimosis seem to be more particularly pre-

disposed to cancer of the penis than others. Of ten persons on whom Mr. Hey performed amputation of the penis for cancer no less than eight had this peculiar conformation.

Sometimes after an operation for relief of congenital phimosis, by slitting open the prepuce, a large irregular fungus sprouts from the extremity of the penis, and continues spreading until it has occupied all that part of it anterior to the scrotum, the whole penis forming a confused mass of irregularly granulated flesh, from which a very fetid matter is discharged. At other times the greater part of the penis is covered with warty excrescences, their bases extending deeply into the substance of the parts from which they grow, and converting them into a hardened mass. It is of importance that this disease should be carefully distinguished from the more common warty excrescence. Mr. Charles Bell says "I have seen a man just about to lose his penis on account of a combination of phimosis with these warty excrescences, which had burst through the prepuce with a very malignant-like distortion. But the prepuce being freely cut open, the luxuriant crop of harmless warty excrescences started forth."

The latter affection has a spreading, mushroom-like top and slender base, and if the intermediate parts can be seen, they will be found to have their natural appearance. The tubercle, which is often the beginning of cancer of the penis, is at first an irregular warty excrescence, with a broad base, in the substance of the prepuce or on the frænum, and

when it ulcerates, the sore is of a dark red colour, and covered with a sanious discharge; the bottom of the sore is not spongy but solid; there are deep excavations and irregular, cauliflower-like excrescences; the margin of the skin is swelled, tuberculated, and standing out from the sore, whilst the irregular ridgy edge is inverted; the skin in the neighbourhood has a purple colour, is thickened and hard; the discharge is offensive and of a very peculiar odour.

Cancer of the penis, like cancer in other parts of the body, can be cured only by the early removal of the diseased parts; and the operation must be undertaken only when it is possible to remove all the morbid structure, and before the inguinal glands become affected. When the disease is confined to the prepuce, it is quite sufficient to remove that part only; but when the glans penis is implicated, more or less of the organ must be removed.

The operation of amputating the penis is simple, and is performed as follows. When the disease does not extend beyond the glans, the whole penis may be cut through with one stroke of a large scalpel, after having drawn the skin forward in order to prevent redundance of integuments, which not only tends to embarrass the operator in securing the blood-vessels, but is also productive of much inconvenience subsequently, by lying over and obstructing the orifice of the urethra. Much advantage will accrue from tying a broad piece of tape

round the sound part of the penis before the operation, by which means the integuments are more easily and more correctly divided, while at the same time it acts as a tourniquet and in some measure restrains the hæmorrhage until the vessels are secured. The dorsal artery of the penis and the artery of each corpus cavernosum are in general the only vessels that require to be tied, but there is often much oozing of blood from the corpora cavernosa. I have witnessed amputation of the penis in which no ligatures were employed, the actual cautery being used instead; and it not only had the effect of staying the hæmorrhage, but the case eventually did well, healing as rapidly as under other circumstances.

When the penis is to be amputated in the ordinary mode, near the symphisis pubis, the corpora cavernosa usually retract so considerably on division, and lie so deeply concealed within the integuments, that it is impossible to discover and secure the bleeding vessels, and the hæmorrhage is consequently profuse. Much time is often lost in the attempt, and hæmorrhage continuing, the patient becomes reduced to a very low state from loss of blood; cases, indeed, are recorded where death has taken place from this cause after amputation of the penis. Compression, cold and styptic applications, or the actual cautery are the means usually resorted to for checking the hæmorrhage; but they seldom prove effectual. By the following mode of operating, we are enabled to

secure the vessels as they are divided, and thus prevent the ill consequences arising from retraction of the corpora cavernosa:—

Having drawn the integuments as far forward as possible, and secured them by a tape, an incision must be made immediately behind the tape, and sufficiently deep only to divide the arteriæ dorsales, which are to be immediately secured by ligature; the incision is then to be carried down through the corpora cavernosa until the arteriæ profundæ are cut, which are to be secured in like manner; the corpus spongiosum is next to be cut, without, however, dividing the urethra completely through, and the arteries of the spongy body being tied, the part is afterwards entirely severed. After amputation of the penis, a flexible gum catheter must be worn or a bougie passed into the urethra every day to prevent the orifice from closing. For want of this precaution the urethra has sometimes contracted so much as scarcely to admit the point of a pin; the urine has accumulated in the bladder; it has been necessary to enlarge the orifice of the urethra, and much difficulty has afterwards been experienced in keeping it open. The patient should always empty his bladder immediately before the operation, as in this case the parts will not be disturbed for some hours afterwards. The blood will sometimes coagulate over the orifice of the urethra, and form a complete obstacle to the passage of the urine; to this particular attention must be paid, otherwise the patient will be exposed to great and unnecessary suffering.

If the operation of amputating the penis be delayed until the glands in the groin are affected, then temporary relief only can be afforded. Most commonly the disease returns at no great distance of time, either in the stump of the penis or in the inguinal glands, and at length terminates the patient's miserable existence.

PART II.

DISEASES OF THE URETHRA.

Without entering minutely into the organization of the urethra, it may be advisable briefly to glance at some of its most important structural features before considering the diseases to which it is liable.

The urethra extends from the bladder to the extremity of the penis, being from eight to ten inches in length; in capacity it exceeds all other excretory tubes, but is of unequal diameter; it receives in its course the ejaculatory ducts, with those of the prostate glands, of Cowper's glands, and numerous mucous follicles. It is usual to divide the urethra into three portions: the *prostatic portion;* the *membranous portion;* and the *spongy portion;* each of which parts presents some difference of disposition and structure: the prostatic portion is intimately connected with that gland from which it takes its name; the membranous portion is thin, and the urethra at this part is much contracted; and the spongy portion at its posterior part is covered by muscles, which constitute the bulb. Throughout its whole extent the urethra is lined by a thin delicate mucous membrane, continuous at one end with that which covers the glans penis, and at the other

with the inner coat of the bladder, and the membranes which line the ejaculatory and prostatic ducts. There are numerous small openings, or lacunæ, to be observed in the course of the urethra; sometimes, one of these openings, situated at a short distance from the glans, is sufficiently capacious to admit of the point of a small bougie.

If we reflected simply on the complicated structure of the urethra, we should readily be disposed to anticipate its liability to various diseases; but, in order sufficiently to comprehend the pathology of this part, we must look to its intimate connexion with other portions of the body. If we take, for example, simple inflammation of the lining membrane of the urethra; this disease may extend by continuity along the seminal ducts to the testicle, and produce acute inflammation of that gland; or it may steal along to the bladder, and there produce mischief; or from thence by the ureters to the kidneys. Chronic disease in the passage, in like manner, gives rise to various affections of distant, as well as of neighbouring parts, which are in many instances treated as original disorders, whilst the cause is overlooked. Among the affections of parts contiguous to the urethra, which derive their origin from chronic disease within that canal, herpetic and other ulcerations of the penis may be enumerated; thickening of the bladder; effusions into the tunica vaginalis; nocturnal emissions, &c.: on the more distant parts are produced a derangement of the digestive functions, with a numberless train of nervous symptoms. It happens, on the other

hand, that disease in parts with which the urethra is connected will excite a morbid action in this passage; and of this, stricture of the rectum affords a striking illustration. Again, it is not unusual for various pains (of which the cause is elsewhere seated) to be referred to the urinary organs, giving rise to an apprehension of calculus in the bladder, stricture, inflammation, and other mischief in these parts, these symptoms being at the same time dependant upon irritation in the stomach, or some part of the intestinal canal. Frequently the most alarming symptoms of pain and spasm of the bladder and urethra will disappear on the removal of a collection of hardened fæces from the rectum, or otherwise correcting the function of the intestinal canal.

In treating of the diseases of the urethra I shall commence with that which is most frequent, and which is generally considered to lay the foundation for all the rest; namely, inflammation and suppuration of its lining membrane.

CHAPTER I.

GONORRHŒA.

The term gonorrhœa means literally a flow of semen; but, in its ordinary acceptation, is applied to a purulent discharge from the urethra, ensuing after sexual intercourse. It must, however, be understood, that there is a form of disease in which matter is abundantly poured from the urethra, independently of coition, being in fact a simple efflux from local irritation. This affection I shall, therefore, consider briefly under the designation of *Simple Gonorrhœa*, and then proceed to treat of Venereal Gonorrhœa.

Sect. I.—*Simple Gonorrhœa.*

The matter discharged is of a whitish colour, and sometimes profuse; there is not any pain or sense of heat in passing urine, or other indication of inflammation: the purulent efflux alone constitutes the disease. It usually occurs in debilitated habits, where there is a general disturbance of the mucous membranes throughout the body. By the old writers, who well distinguished this affection from the "virulent" gonorrhœa, it is said to proceed from "a weakness or ill constitution of the patient, or from bruises on the privities." According to Mr. Hunter, the disease may *arise from transferred irritation of the teeth;* while some of the continental writers have found the cause in a metastasis of rheumatism. I have been called upon to treat some cases in which the disease seemed

plainly owing to excessive venery; topical causes, however, may produce the discharge, as inordinate exercise on horseback, the introduction of bougies for the cure of stricture, violent blows on the perineum, and the like.

Sometimes, in arthritic habits, a puriform discharge, attended with ardor urinæ, and inflammation of the lips of the urethra, will take place for some days previously to a fit of the gout, and these symptoms will spontaneously disappear on the inflammation becoming established in the toe or elsewhere. This may be termed arthritic gonorrhœa; of which a well marked instance occurred to me in the year 1815, in the island of St. Christopher.—A gentleman of middle age consulted me on account of a purulent discharge from the urethra, attended with considerable inflammation of the lips of the urethra, ardor urinæ, &c. under which symptoms he had laboured two or three days. He had been exposed to the danger of infection about a week previously; but the female with whom he had been connected proved, on examination, to be perfectly healthy; and he was much at a loss to account for the origin of the disease. Having no doubt, as I thought, of the nature of the case, I prescribed as for a venereal gonorrhœa. During that night, however, and before he had made use of any remedies, he was seized with a smart attack of gout in the foot, and, to our mutual surprise, the affection of the urethra had vanished before morning.

The most effectual means in the treatment of simple gonorrhœa are rest, mild astringent injections, gentle laxatives, and tonics.

Sect. II.—*Venereal Gonorrhœa.*

This is a far more formidable disease than the preceding. The first symptom to which the patient directs his attention is a tingling sensation, or itching, at the orifice of the urethra, and sometimes this sensation extends entirely over the glans; there is, in addition, a sense of fulness and soreness at the under part of the penis. If inspected at this time, the lips of the urethra will be found to be somewhat separated, swollen, of a deeper red colour than usual, and tender to the touch. On pressing the glans, a little pus of a whitish colour exudes, and, in the course of a day or two, varying according to the irritability of the habit, the discharge becomes more abundant, and is of a yellowish green colour; the itching is now changed to pain, most acutely felt at the time of voiding urine, the calls to which are more frequent than usual, and are attended with an acute scalding or burning sensation. The urethra becomes lessened in its diameter, partly in consequence of the inflamed and swollen state of its lining membrane, and probably also from some degree of spasmodic contraction; so that the urine is voided in a much smaller stream than usual, and sometimes it is forked, as if the passage were divided. Painful erections of the penis are apt to distress the patient, especially at night.

Such are the symptoms which occur in ordinary cases of gonorrhœa, when the morbid affection of the urethra is confined (as it commonly is) to within a few inches of the extremity of that canal; but sometimes the inflammation extends farther, or even pervades the whole of the canal reaching to the bladder; or, suddenly quitting the anterior portion, fixes on some part intermediate between this viscus and the extremity of the penis, producing symptoms which vary in severity according to the seat of the affection.

When the inflammation reaches the membranous portion of the urethra, the symptoms are much aggravated; the ardor urinæ is more intense, the whole body of the penis is tender and painful, and erections of this member take place to such a distressing degree as to deprive the patient entirely of sleep. The matter discharged from the urethra is fetid, and either of a dirty green colour or deeply tinged with blood; it proceeds from about the middle of the perineum. The patient experiences a smart pain when pressure is applied to this part, and one or more small tumours are often discoverable; these are Cowper's glands in a state of inflammation, and they occasionally suppurate. A soreness is often felt along the whole of the under side of the penis, owing to the inflamed state of the urethra; this soreness often extends as far as the anus, and gives great pain, principally in erections. There is also a considerable degree of uneasiness in the testicles, which frequently become so tender and irritable that the slightest touch excites pain.

If the inflammation extend to the prostate gland, the patient has a severe, fixed, bearing-down pain in the upper part of the perineum, accompanied with a sensation of fulness and tension in all the parts contiguous to the anus; the desire to void urine is incessant, it is passed with excruciating pain and great difficulty, and frequently only drop by drop: tenesmus is generally present to a distressing degree. Fever is commonly attendant on this state, and sometimes to an alarming extent; much pain is felt if pressure be made on the parts contiguous to the rectum; and if a finger be passed per anum, the prostate gland will be found enlarged, and in such a state of irritability that it will scarcely bear to be touched. Sometimes the inflammation spreads backwards in a gradual manner from the point of the penis; but more frequently it takes place suddenly, in consequence either of injudicious treatment, or imprudence on the part of the patient.

When an elderly person is affected with gonorrhœa, as Sir A. Cooper has observed, it is generally accompanied with an enlarged state of the prostate gland; and the patient rarely escapes without experiencing the most excruciating suffering from this cause.

If the inflammation reach the bladder, there is great uneasiness over all the hypogastric region, and shooting pains, particularly about the neck of the bladder and the anus, accompanied with tenesmus and incessant desire to make water, which has a turbid appearance, being sometimes mixed with

blood and with a large quantity of mucus. When the disease has been of long continuance, the urine becomes tough and viscid, and after cooling attains nearly the consistence of jelly; the quantity of mucus thus discharged is sometimes but small, whilst at others it forms more than one half of all that comes from the bladder, and tends greatly to reduce the strength. It is important to remark, that when the bladder is thus affected, it may excite a suspicion of the existence of a calculus. The diagnosis between this state (irritable bladder) and stone is this: in the former disease the pain is felt most when the bladder is full, in the latter it is severest when the bladder is empty.

Swelling and suppuration often take place in the lacunæ, particularly in the lacuna magna, which may be known by a swelling and fluctuation on the sides of the frænum.

Sometimes in the course of the disease the glans penis becomes inflamed, and a yellow fetid matter oozes from its whole surface; in some instances the part is excoriated, but in others the skin is entire. This affection when it spreads to the prepuce excites an effusion into the cellular membrane, and great tumefaction, by which it becomes so much contracted as to be incapable of being drawn back over the glans, constituting in fact phimosis.

The absorbent vessels on the dorsum penis often become enlarged, and in this case a cord-like substance may be felt extending along their course; occasionally little abscesses are formed.

The glands in the groin become affected more

or less, in proportion to the severity of the inflammation and the susceptibility of the patient's habit. As a general rule, in a first gonorrhœa the glands suffer, but they rarely proceed to suppuration under any circumstances.

It has been already remarked, that the matter of gonorrhœa changes its colour in the course of the disease, sometimes from white to yellow, and often becomes greenish. That these changes appear to be dependent upon an increase or decrease of inflammation, is evident from the fact of similar results being observed in other purulent inflammations. If matter be received on a cloth or linen rag, and suffered to become dry, the variations of colour will be most readily perceptible; in the middle, the matter being thicker and more in quantity, it is generally of a deeper colour; the circumference is paler, because the watery or serous part of the matter has spread farther; and at the outer edge of all it is darkest.

Hæmorrhage from the urethra is not an unfrequent occurrence in the progress of gonorrhœa, where the symptoms run high, and in general much relief is afforded by loss of blood. The vessels of the urethra give way under immense accumulation; or it happens that in erection of the penis the internal membrane is so far put upon the stretch that it lacerates, and extravasation of blood takes place.

The discharge from gonorrhœa is very much affected by constitutional causes: thus, a person having a profuse discharge from the urethra, with considerable pain, is attacked with fever, the dis-

charge disappears, the pain ceases, and he will be entirely free from all symptoms of the disease for fifteen or twenty days. As soon, however, as he begins to recover from his febrile affection, the discharge of matter will be restored, the pain will return, and a long time may elapse before the disease can be removed.

The usual period at which gonorrhœa appears after sexual connexion is about the fourth or fifth day; as a general rule, it may be said that it is seldom earlier than the fourth, and very seldom exceeds the seventh; though it will sometimes appear within twenty-four hours after connexion, and sometimes a fortnight will elapse. Sir A. Cooper mentions an instance in which it was delayed for fourteen weeks, in consequence, as he supposed, of general indisposition of the patient. None of these circumstances, however, appear to have any effect in modifying the disease; either a mild or severe form being as likely to take place when the discharge has come on at an early as at a later period after exposure to infection.

The duration of gonorrhœa is always a matter of much uncertainty, and we cannot at first, in any case, determine when it will probably end. The most severe as well as the most obstinate discharge will often succeed to the mildest symptoms; whilst in other cases the discharge ends quickly and easily, although the symptoms were at first severe. No opinion can be formed as to the probable duration of the disease from the appearance of the matter discharged.

There is one point on which medical men are often questioned, namely, at what period the discharge ceases to be infectious? Mr. Hunter thought that, after the violence of the symptoms had abated, the discharge might still continue spinning itself out to an amazing length of time and retain the power of contamination. In this state two persons who are habituated to the discharge may cohabit with impunity, whereas the disease would be communicated to a stranger. A case is frequently quoted, in which a young woman who had been an inmate in the Magdalen for twelve months, and who had gonorrhœa when admitted, on the night of her dismissal from the establishment slept with a gentleman, to whom she communicated the disease.

It seems to be indispensable towards the propagation of gonorrhœa, that matter should be formed and applied to a sound person or part. Thus a husband having received the infection may cohabit with his wife in safety, previously to the appearance of the discharge; and Mr. Hunter was farther of opinion, that a man with gonorrhœa might safely have connexion with a sound woman, provided great care were taken to clear all the parts of matter by first syringing the urethra, making water, and washing the glans. I have met with two cases in which this opinion was put to the proof: the first occurred with a gentleman, who, before intercourse with a kept woman while he was labouring under gonorrhœa, took the precaution of passing his urine, and also of freely injecting the passage

with a solution of sulphate of zinc (a scruple to six ounces of water); by these means the disease was not communicated. In the second instance, the patient affected with gonorrhœa was a married man, and being desirous of avoiding suspicion, he had connubial intercourse repeatedly without transmitting the infection to his wife, in consequence of his adopting the same precautions as in the former instance.

But notwithstanding the impunity with which this practice was adopted in the foregoing cases, it is an expedient which cannot be too severely reprobated; for there is much reason to doubt, whether sexual connexion between a patient under gonorrhœa and a sound person can be entirely free from danger to the latter; and we must not, on any plea of preventing unpleasant discoveries, encourage absolute confidence in a line of precaution which may be unavailing, and cause discovery at last by the infliction of a manifest injury. It is much better, until health is restored, to allege, in general terms, a state of the urinary passage which demands restraint until it be removed.

The effects of the gonorrhœal matter on different persons are various. Two men having connexion with the same woman, and both taking the disease, one of them may have it in a mild and the other in a very severe form; the symptoms depending upon the constitution and habit of the patient. Mr. Abernethy states that gonorrhœas are now much less severe than they were formerly, and that it is as rare to meet with a disease like the old

gonorrhœa as it is to meet with a sore resembling the Hunterian chancre.

Gonorrhœa, when early attended to, seldom fails speedily to yield to judicious treatment, although it will at other times continue several months in despite of all the means employed. We should not, however, in any instance trust the case to efforts of nature; for we may, in general, very much expedite recovery by adopting judicious treatment. The disease is in general difficult of cure in proportion as the constitution of the patient is disposed to scrofula; and the first infection is generally more severe and tedious than subsequent attacks.

The copaiva appears to possess almost specific powers in subduing inflammations of the secernents of mucous membranes, and this medicine rarely fails, when properly administered, to quickly mitigate the most distressing symptoms of gonorrhœa. The balsam, when administered in a pure state, is apt to pass off by the bowels, and there are few stomachs to which it does not prove obnoxious when so given; for these reasons it is preferable in the form of emulsion, combined with gum acacia, as in the subjoined formula*. It cannot, however,

* Take of Balsam of copaiva, two to four drachms;
Mucilage of acacia,
White sugar, of each half an ounce;
Spirits of nitrous æther, one drachm;
Cinnamon or pimento water, three ounces. Mix.
One half to be taken every night and morning.

even in this state, be given many days without producing a feverish heat of body, with dryness and excoriated state of mouth and fauces, loss of appetite, nausea and oppression of the stomach; and in some instances it produces a species of nettle-rash, which is exceedingly distressing.

We are indebted to Mr. Morson, of Southampton-row, for a very elegant preparation of this valuable medicine, which he calls the soluble resin of copaiva. It possesses the medicinal properties of the balsam in a concentrated state, while at the same time it is in a great measure divested of its nauseous and unpleasant qualities: its ready miscibility with hot water gives it a decided superiority over the insoluble resin. I feel persuaded that when this preparation becomes more generally known it will entirely supersede every other. It may be administered either in the form of a mixture or of pills*; the latter is, however, the most agreeable mode of taking it.

Since I became acquainted with the virtues of the soluble resin, I have prescribed it repeatedly

* The pills are prepared as follows:

Take of Soluble resin of copaiva, four scruples;
Powder of gum arabic, and
Castile soap, of each half a scruple.

Mix well together in a mortar, heated by boiling water, with a warm pestle, and divide whilst warm, into pills of five grains each: three or more may be taken three times a day.

To prepare the mixture:

Dissolve one drachm of the soluble resin in six ounces of boiling water, and strain through a piece of muslin: it will not separate on cooling.

Dose.—A quarter part three times a day.

in cases of gonorrhœa in the forms above mentioned, and with the best possible results. When administered in pills, the patients have not experienced the slightest inconvenience either of stomach or other part; the effects were in every case fully equal to those which would have resulted from the balsam under similar circumstances.

It has been generally recommended that the inflammatory symptoms should be moderated by purging and other antiphlogistic means, previously to the administration of the copaiva; but, for my own part, I do not find any other remedy so powerful in subduing the inflammatory symptoms as this medicine, and I consider that the good effects resulting from its use are chiefly in proportion to the earliness of administration; consequently, in ordinary cases of gonorrhœa, after evacuating the bowels, I commence immediately with the copaiva. In the course of a few days, and generally within a week, the inflammation, ardor urinæ, and discharge will have considerably abated, and sometimes altogether ceased; and at this time a slightly astringent injection may be used with great advantage for completing the cure. The injections directed for this purpose are extremely various, but the result of my experience is, that injections composed of sulphate or acetate of zinc are the most useful. I usually prescribe, in the first instance, a scruple of the sulphate to six ounces of water, and seldom find it necessary to increase the proportion of the salt beyond half a drachm. If, however, the discharge do not soon give way to a steady use of this injection, gradually increased in strength, it

is advisable to vary the remedy:—Twenty drops of the liquor cupri ammoniati mixed with four ounces of rose-water form an excellent injection; a grain or two of alum to an ounce of water; six grains of sulphate of copper dissolved in four ounces of water; or one grain of the muriate of mercury dissolved in eight ounces of water. The strength of these injections requires to be increased or diminished according to the particular circumstances of each case: much depends upon nicely adapting the strength of the injection to the sensibility of the part. It should be of such a strength as to cause a slight sensation of smarting, but not of pain, for a minute or two after use. Injections have often been condemned as producing stricture of the urethra; it is not, however, to the use of injections that such results are attributable, but to the long continuance of inflammatory action; the judicious employment of injections therefore, by quickly subduing this inflammatory state, may rather be considered as preventive of stricture.

The manner of using an injection is a matter of considerable moment. The patient should previously make water, so that all matter may be washed out of the urethra; pressure should then be made anterior to the scrotum by the middle finger of the left hand, so as to prevent the injection passing beyond that point. The end of the penis being held between the fore-finger and thumb, the pipe of an elastic gum-bottle or common syringe, filled with injection, should then be introduced in such a manner as to fill up the canal and prevent the escape of the fluid; as much of the injection

should be gently thrown in as will fully distend the urethra, and it should be retained for half a minute. A second, and even a third portion may in like manner be injected, and the extremity of the penis may afterwards be allowed to soak for a few minutes, in some of the lotion. It will be sufficient to use the injection three or four times a day, and it will be proper to continue it for a week or ten days after the discharge has ceased. The antiphlogistic regimen should at the same time be enjoined, and if the patient can confine himself to the house and observe a recumbent position, it will very much accelerate the cure.

The bowels should be kept lax through the course of the disease; but free purging is injurious. For the purpose of rendering the urine as little irritating as possible, diluting and mucilaginous drinks should be taken in large quantity; as capillaire, linseed-tea, or a solution of gum arabic. Soda-water too is often useful; but it should be ascertained whether it produces irritability of the bladder, for in some persons it increases instead of diminishing irritability. When the ardor urinæ and pain from chordee are very severe, twenty drops of the liquor of potash with three or five grains of the extract of hemlock, repeated three times a day, may be given with considerable advantage: this composition will sometimes allay the symptoms alluded to in a most surprising manner. During the inflammatory stage, the penis may be fomented with warm water and decoction of poppies; but subsequently linen wet with a saturnine lotion may be applied. The testicles should be well supported

from the first, to prevent their swelling; and all sexual intercourse and violent bodily exertion should be avoided.

The cubebs, or Java pepper, is a remedy which of late years has grown into great repute for the cure of gonorrhœa. It is said this spice has the power of allaying irritation, and of diminishing the discharge in a degree beyond that of any other medicine, frequently effecting a cure in the course of forty-eight hours, and often in less time. It is administered in the earliest and worst stages of the severest gonorrhœa, and it is affirmed that when the disease has been treated for a week or ten days by other remedies, and the inflammatory symptoms have in a great measure subsided, no benefit is to be expected from cubebs. The tincture is given in the dose of one drachm to half an ounce; but the most usual manner of exhibiting it is in the form of powder mixed with water, in the dose of two or three drachms, or a dessert spoonful, five or six times a day. As its virtues principally reside in an essential oil, to obtain its greatest power it should be used after being recently ground: in selecting the drug, it is necessary to be particular in choosing it with a stalk attached to it, as from its great resemblance to common black pepper it is often adulterated. The sensible effects of cubebs are remarkably mild: it occasions, though not invariably, a slight purging, and imparts to the urine its own peculiar odour; a flushing of the face and burning heat in the hands and feet are occasionally experienced. It is proper to continue

the medicine for a few days after the discharge has ceased; for, if the use of it be interrupted on the first appearance of a cure, a relapse may probably take place. Swelling of the testicle occasionally takes place during the use of cubebs, and in some constitutions it is not, perhaps, altogether devoid of danger. Paralysis has been supposed, in one case, to have ensued from it; and I have known it, in several instances, increase the inflammatory symptoms, inducing irritable bladder. In fact, my own experience is decidedly against the use of this medicine.

In the first stage of gonorrhœa, the disease, it is said, may be almost instantaneously cured by injecting into the urethra a strong solution of nitrate of silver. This injection causes at the moment great pain, and the discharge is generally immediately stopped: the practice, however, is attended with great risk of exciting severe inflammation of the entire urethra and bladder, and in my opinion is highly reprehensible.

A combination of calomel and opium has sometimes a very excellent effect in severe cases of gonorrhœa. A young gentleman had gonorrhœa, the symptoms of which were unusually violent, and so far from yielding to the antiphlogistic plan, had considerably increased; he was also attacked with fits of chordee, accompanied with such excruciating pain as nearly to deprive him of reason. Pills containing two grains of opium and five grains of calomel were given about two hours before the period of the usual recurrence of the paroxysms, and the

bowels were opened by castor oil. On the first night the patient was astonishingly relieved, and in three days completely freed from every distressing symptom.

Acetate of lead, under similar circumstances, is often productive of marked benefit. In a very obstinate case of gonorrhœa, attended with distressing chordee, and which had resisted the usual antiphlogistic treatment and anodynes, after taking three doses of the acetate of lead, chordee and ardor urinæ were considerably abated; the patient had no return of priapism during the night, and the following morning experienced very little pain in evacuating his urine. The medicine being continued, in three days he was perfectly well without the use of injections, or any other remedy.

Sometimes after a person has had a very severe gonorrhœa, the dorsum penis will be so extremely hard as, upon examination, to feel as if it were ossified. The linimentum hydrargyri may in this case be rubbed on the part night and morning; or, if the complaint be recent, the part may be kept covered by the soap cerate.

In the case of a patient who has had a discharge for some time, it will be advisable to begin at once with the use of bougies and injections. The bougie increases the discharge for a time; but being afterwards used with an injection of sulphate of zinc, will generally succeed in effecting a cure. The injection should be of such strength as to produce a slight degree of irritation, but it is better to vary it than to increase the strength in any very great degree. Sometimes the scalding in making water

will continue long after every other symptom has given way, and is very difficult to remove. An injection of muriatic acid, in the proportion of one drop to an ounce of water, answers better in such cases than any other medicine, either internal or external.

When the inflammation has extended to the membranous portion of the urethra, and the symptoms run very high, if the patient be plethoric, blood should be drawn from the arm, and leeches at the same time freely applied to the perinæum; fomentations and poultices will also be useful; and if, in spite of our efforts, suppuration take place, the matter should be discharged as soon as perceived, by a free incision. When the glands in the urethra are so much enlarged as to be felt externally, frictions with the camphorated mercurial ointment may be advantageously employed after inflammation has subsided.

If inflammation have reached the prostate gland, early blood-letting is the remedy on which we should place the greatest reliance. It should be resorted to on the first approach of pain, even in delicate subjects; and a quantity abstracted proportionate to the strength of the patient, and afterwards by the application of leeches to the parts affected. Blisters do not afford the same relief in this case as in affections of Cowper's glands. Mr. B. Bell recommends a deep pea-issue on each side of the raphé of the perineum, as the most potent remedy for the removal of this very distressing and

obstinate affection. Mild laxatives, together with antimonials, should be employed, and opium, which in this case is most serviceable in the form of enema, and seems to answer better, when given in small doses frequently repeated, than in large quantities at once. Thirty minims of tincture of opium, mixed with two ounces of starch, and thrown into the rectum, seldom fail to afford relief, by lessening the irritability of the bladder, and removing the tenesmus, which is so distressing to the patient. Warm anodyne fomentations, and poultices applied over the fundament and perineum prove useful, and the warm bath, or semicupium, affords much relief. The same plan may also be pursued with decided advantage in those unpleasant symptoms which occasionally come on about the latter part of the inflammatory stage of gonorrhæa, viz. irritation of the neck of the bladder, attended with constant inclination to evacuate urine, violent pain in discharging the last drops (owing to spasmodic action of the accelerator muscles) sense of weight about the perineum and anus, tenesmus, &c.

When the bladder becomes affected, blood should be abstracted as in the last case; the bowels should be kept gently open by castor oil, and opium should be prescribed in large doses, together with warm emollient injections and mucilaginous drinks. The foregoing remedies, when judiciously applied and duly persisted in, seldom fail to alleviate the pain and irritation at the commencement of the disease; but in its more advanced stage, when the

pain is less acute, but the discharge of viscid mucus copious, the use of bark is attended with advantage; and the addition of a few grains of alum to each dose, in some instances renders it more effectual. Copaiva and Canada balsam likewise prove useful, and should be given in as large doses as the stomach will retain. In unmixed affections of this nature, where the bladder only is diseased, the uva ursi is an effectual remedy, and seldom fails to procure relief, provided it be given in large doses. Cupping on the loins to the extent of ten or twelve ounces is also useful.

When the disease has been of long duration, the bladder becomes thickened and its cavity lessened, so that a frequent desire to pass water continues long after the other symptoms have subsided. For the purpose of keeping the bladder in a state of quietude, which is the principal object to be attended to, a short flexible catheter should be introduced and retained; the instrument should be of sufficient length so as just to enter the bladder, and should be tied to a bandage carried between the thighs and round the loins. Thus by allowing the urine to escape as fast as secreted, and keeping the bladder empty, great ease will be at once experienced. If the bladder be ulcerated, this treatment is equally advisable and beneficial; for by keeping the bladder undisturbed, an opportunity is afforded the sores to heal; and in addition to the catheter, as in the former case, where there is a quantity of mucus discharged from the bladder, small doses of oxymuriate of mercury, with spirit

of nitric æther, may be given*. But the best remedy is the copaiva; no medicine so completely deprives the urine of mucus as this: eight or ten drops of the balsam, a tablespoonful of the mixture of the soluble resin, or two of the pills, may be given three times a day, with the medicines before mentioned.

The liquor potassæ conjoined with an infusion of the diosma crenata or buchu leaves or any of the simple bitters, with tincture of hyoscyamus, will frequently succeed when every other remedy has been tried in vain.

Costiveness must be obviated by the use of castor oil; and the counter irritation produced by application of a blister to the region of the pubes, or on the sacrum, is sometimes productive of great service. When opium, from producing obstinate constipation, or from affecting the head, is not advisable, much advantage will be derived from hyoscyamus, commencing by five or six grains of the extract, and gradually increasing the dose as may be found necessary.

Sect. III.—*Chordee.*

This being one of the most distressing consequences of gonorrhæa, I shall devote a short space to a particular consideration of it. The disease consists in a painful and involuntary erection of

* ℞.—Hydrargyri oxymuriatis, gr. ¼.
Spiritûs ætheris nitric, f℥i.
Misturæ Camphoræ, f℥xi. Misce. fiat haustus ter quotidie sumendus.

the penis, to which persons in every state of gonorrhæa are in some degree liable; but it occurs more frequently, and with much greater severity, when disease has extended to the membranous or prostatic portion of the urethra. It is most troublesome at night, when the patient is warm in bed, and is, in many instances, so severe as to deprive him entirely of rest. During a fit of chordee the penis is hard and painful to the touch, and is curved downwards, or drawn to one side, in a considerable degree. The affection is caused by inflammation extending to the corpus spongiosum, and effusion of coagulable lymph into its reticular texture, which uniting the cells together, destroys the power of distension of the corpus spongiosum urethræ, and makes it unequal in this respect to the corpora cavernosa penis when an influx of blood causes an erection; hence, a curvature takes place at this time. Besides this effect of inflammation, when the chordee is violent, the inner membrane is put so much upon the stretch as to be in some degree torn, which frequently causes a profuse bleeding from the urethra, and this sometimes proves a means of cure.

In the commencement, bleeding from the arm, if the symptoms be very urgent, is of service; but it is more immediately useful to take away blood from the part itself by leeches; for, as above observed, we sometimes find that the disease is got rid of by a vessel giving way in the urethra, and hæmorrhage ensuing. Relief will often be obtained

by exposing the penis to the steam of hot water; a poultice made of crums of bread and camphorated julep may be applied with very good effect over the perineum; or a liniment of camphor and oil may be rubbed over that part. The internal exhibition of opium is most to be relied upon; and if it be joined with camphor, the good effect will be still more evident. Opium in such cases seems to act rather by lessening pain than by removing inflammation, though, by preventing erections, it may be said to obviate an immediate cause of the complaint. When chordee is distressing and the pain excessive, attended with difficulty of voiding, or absolute retention of urine, great relief is often obtained by a combination of calomel and opium, given every night and morning, or oftener.

Belladonna applied externally has been advised; but I have, in many cases, used both the extract alone and also an ointment prepared with the fresh leaves of the plant, without any marked benefit.

The following practice has been recommended for preventing the exacerbations of chordee, and, it is said, will seldom be found to fail if properly resorted to, viz. to turn the penis upwards over the symphysis pubis and tie it there moderately tight by a circular bandage or ligature, taking care to interpose a few folds of cloth between the penis and belly. This, however, must be done when the penis is quite flaccid, otherwise the manipulation will the sooner bring on the attack; but, at any time during the severest chordee, flannel soaked in cold water, or in a solution of acetate of lead,

and put round the penis, will remove it and render that member quite flaccid; thus we can at any time prepare it for being so bound down.

When chordee continues after other symptoms are subsided, little or nothing in the way of evacuation seems to be necessary, inflammation being subdued and a consequence of it only remaining, which will cease under the gradual absorption of the extravasated coagulable lymph. Mercurial ointment, or what is more powerful, the linimentum mercuriale, rubbed on the part, will promote absorption of this extravasated lymph.

The extracts of cicuta and of hyoscyamus in full doses three times a day have sometimes afforded considerable benefit after ordinary methods of cure have been tried in vain. Chordee, it may be observed, will often continue long after the running has ceased; but no evil results from it; its declension in most cases is gradual and uniform, as happens in most of the consequences of inflammation.

Sect. IV.—*Gonorrhœal Rheumatism.*

This form of disease sometimes, though rarely, occurs during the continuance of a gonorrhœa. The pain and swelling are more especially confined to the knees and ankles; though in some instances symptoms are more diffused, pain is more acute, and general disturbance of the system more violent. It is usually not until gonorrhœa is on the decline that these symptoms supervene, though occasionally they have appeared to follow a sudden cessation of the discharge produced by the use of

cubebs or copaiva. The attack generally takes place suddenly, and the subjects of it are usually young men of scrofulous habits, florid complexions, and not particularly robust. There is often much puffiness and tenderness of the ankles, especially towards evening; the skin is not externally red, and the pain is not much increased on pressure; the pulse is quickened; the stomach becomes disordered; the appetite declines or altogether fails. Occasionally it happens that all these symptoms are suddenly relieved by an eruption of papulæ in clusters, or sometimes of pustules in very minute patches. When these appear, not only are the pains relieved, but the constitutional symptoms also yield; and the eruption, after some days, though sometimes not for some weeks, grows paler, and a desquamation succeeds, leaving a slightly discoloured state of the skin, which gradually subsides.

With respect to the treatment of these cases; on commencement of the pain and swelling of the joints, rest and confinement to bed together with the employment of general or local bleeding will be necessary. The lancet is preferable to leeches, but the abstraction of blood should not be carried to any great extent. The liquor of acetate of ammonia combined with antimonials or compound powder of ipecacuanha in doses of three or four grains, may be given every four hours; the wine of colchicum is also an excellent remedy when given in such quantity as will have some effect upon the stomach and bowels, and frequently pro-

duces very sudden remission of the pain; it may be administered either in a full dose, as one drachm at once, or in more divided doses of from twenty to thirty minims every four or six hours.

When the pains are relieved and the pulse returns to its healthy standard, frictions of the limbs with some gently stimulating liniment, or by the flesh-brush, with internal use of the compound decoction of sarsaparilla, will tend to restore tone and vigour to the system. If the joints continue swollen and stiff, the warm salt-water bath, used three times a week, will be useful, together with a moderate share of exercise if the weather admit of it.

When this affection of the joints is succeeded by eruptions of a papular or pustular form, in addition to the foregoing treatment, small alterative doses of mercury may be employed; and the compound calomel pill is perhaps the best form. Under this treatment the eruptions will fade much more quickly and the strength and health of the patient will be more speedily restored than when the cure is trusted entirely to the vegetable decoction.

It sometimes happens that the rheumatic affection is dependent upon an irritable state of the urethra; the symptoms then are more remarkable for their obstinacy than their severity, and a cure cannot be effected until, by the employment of bougies, the canal is restored to a healthy state.

Gonorrhœa has in some instances been followed by ulceration of the soft palate and destruction

of the palatine bones. Mr. Bacot mentions two cases which came under his observation, and in both of which the disease proved of the most violent and intractable nature. Ulceration of the palate took place about two months from the apparent cure of the discharge. It was preceded by an inflammatory blush of the whole palatine arch; a small pimple formed and burst just where the velum pendulum palati begins; this spread rapidly until the ulcer attained the size of a silver threepence; and continued then with a sloughy bottom, and without much pain, but indisposed to heal by all the simple means employed for that purpose. The patient was of a strumous habit and very irritable constitution. The first appearance of the disease was accompanied by much fever, which gave way to active purging and antimonial medicine. Sarsaparilla was afterwards freely employed; but it was not until mercury was conjoined that a cure was effected.

Sect. V.—*Gonorrhœal Ophthalmia.*

It will not be considered irrelevant briefly to advert here to that most destructive form of ophthalmia which occasionally prevails during the progress of gonorrhœa, and which I believe to be in every instance produced by the direct application of the urethral discharge to the eye.

The attack of this species of ophthalmia is generally very sudden: for the most part one eye only is affected, but occasionally the disease affects both, and there is then sometimes, though not

generally, a diminution or suppression of the discharge from the urethra. The seat of the disease, in the first instance, is in the membrana conjunctiva, which becomes red and swollen to a great degree, and with a rapidity which has no parallel in any other condition of this organ. The inflammation quickly extends to the cornea; a profuse purulent discharge takes place from within both the upper and lower palpebræ; the vessels of the transparent cornea become injected with red blood, and complete chemosis often ensues in forty-eight hours, or even less. The rapidity with which the conjunctiva becomes engorged is sometimes truly astonishing, everting both the lids; and the discharge is profuse beyond what could be conceived, either from the space which affords it, or the time in which the disease runs its course. The pain attending it is extreme, and the symptoms of constitutional disturbance very severe. The inflammation extends into the interior of the eye, producing a sudden effusion of lymph into the anterior chamber, and ultimately ulceration or rupture of the cornea, and consequent destruction of the eye.

It is obvious that in the treatment of these cases —where disease runs its course with such frightful rapidity—we must be proportionally active in our remedial means. Large blood-lettings, repeated according to circumstances, and the exhibition of tartrate of antimony, so as to induce and keep up nausea and faintness, are two of the most powerful agents in subduing inflammation. But my experi-

ence in the treatment of this disease leads me to prefer the exhibition of calomel in conjunction with the antimony; as, for instance, if we suppose an extreme case in which blood has been quickly abstracted to the amount of thirty, and I have sometimes bled even to forty ounces, I then commence with two grains of calomel and a quarter or a sixth of a grain of tartrate of antimony every hour or two.

The pre-eminent value of calomel in arresting acute inflammation of *serous* membranes is so well known, and the remedy so generally had recourse to, that it would be superfluous to say any thing on that point; but I have always been of opinion that the importance of calomel in arresting acute inflammation of *mucous* membranes has not been sufficiently acted upon. If I should not be considered as entirely deviating from my subject, I would specially notice the utility of mercury in cases of acute inflammation of the lining membrane of the larynx, trachea, and bronchi.

In respect to the lowering practice in the treatment of gonorrhœal ophthalmia, Mr. Travers has very justly remarked that the difficulty consists in knowing how far to go and not outstep the boundary; to know when to venture upon a short and sudden reverse of treatment. If after active blood-letting the patient be sunk and exhausted, and the cornea exhibit a dullness over its whole surface, "as if shrunk by immersion in an acid," and if there be an ash-coloured patch in the centre, then death of parts will ensue, and we must support the vital powers.

It must, however, be confessed, that in a great majority of cases, although from the beginning the disease may be treated in the most prompt and energetic manner, yet the means will prove insufficient. Both Mr. Wardrop and Mr. Wishart, two of the most experienced ophthalmists in this country, bear testimony to the difficulty, or it may almost be said the impossibility, of arresting gonorrhœal ophthalmia. The latter gentleman, in a paper on this subject in the Edinburgh Medical and Surgical Journal for 1827, informs us, that in his whole life he had only met with one case where the progress of the disease was stopped before it produced irremediable loss of vision, and Mr. Wardrop has been scarcely more successful. On this point I venture to remark, with a full sense of the high value of the experience and opinion of these gentlemen, that the results of my practice do not confirm the foregoing opinions in their fullest extent.

From a conviction of the insufficiency of the antiphlogistic treatment, though pushed to the utmost extreme, in subduing this species of ophthalmia, a practice diametrically reverse in its nature has recently been adopted by several army surgeons. It consists in dropping into the eye a strong solution of nitrate of silver; ten, fifteen, or twenty grains to an ounce of distilled water. This practice is had recourse to in the commencement of the severest form of conjunctival ophthalmia; and it is said, that so far from producing, as might be supposed, any increase of pain, it is attended with the most decided advantages; the pain and redness of the membrane being overcome almost immediately, and

the cure effected, even without the abstraction of blood. The testimonies in favour of this practice in conjunctival inflammation are, I must acknowledge, so satisfactory, that I should not hesitate to adopt it in gonorrhœal ophthalmia.

There is a kind of chronic ophthalmia which occurs in conjunction with the rheumatic pains and swellings of the joints already described as occasionally taking place in the progress of gonorrhœa. This affection is very different from the formidable disease which I have just described. It appears that the conjunctiva, in common with the other mucous membranes of the body, is in a disordered condition; and, it is worthy of remark, that, in some instances, this ophthalmic affection alternates with the pains in the limbs.

Sect. VI.—*Chronic Gonorrhœa or Gleet.*

When gonorrhœa has been neglected, or has not yielded to the remedial means adopted for its cure, it degenerates into a chronic state, which is denominated gleet.

There is much reason to doubt the correctness of the opinion generally entertained, that gleet is not infectious. A medical man is by no means justified in saying that a discharge of a gleety kind is not infectious; for it has frequently been known to produce gonorrhœa after continuing for many months. Sir A. Cooper mentions, that a married gentleman, having gone to Lisbon, there contracted a gonorrhœa; and, on his return to England, after the

expiration of five months and three days from the period at which he first observed the disease, called upon him to inquire whether he might go home in safety to his wife, saying he had a little discharge, and wished to know if, after having had it for the time stated, it were possible that it could be infectious. He was informed that there was no danger of communicating it: he returned home, and unfortunately gave his wife a severe clap. I was consulted a few years since by a gentleman who had been recently married, and who informed me that he had communicated a gonorrhœa to his wife. He said that, a year prior to his marriage, he had a gonorrhœa, that he made various attempts to get rid of it, and had a variety of advice about it, but a yellow discharge always continued. He was told by every body it was not infectious, and not until after such repeated assurances did he get married.

It often happens that a patient is affected with a discharge of a thin fluid from the urethra, varying in colour from a semitransparent white to that of a purulent matter: sometimes it is profuse, but more commonly so trifling in quantity as to be perceptible only after the accumulation of the night: this discharge proceeds from one or more of the lacunæ of the urethra, and, on examination, a number of small knotty tumours may be felt on the under surface of the urethra. These successively burst and discharge themselves into the urethra, and the swellings then subside; sometimes, however, these little abscesses break externally. The most fre-

quent seat of disease is in the lacuna magna opposite to the frænum.

Whenever, after a gonorrhœa, an abscess can be felt moving about in the scrotum, it will be found in the lacuna opposite to the scrotum, and will prove not only troublesome to the surgeon, but dangerous to the patient; for in this situation abscess after abscess will frequently form until the patient sinks under the long-continued irritation of the disease. The mode by which we distinguish whether the matter is that of gonorrhœa or is formed in the lacunæ, is this:—if the discharge be from an abscess of one of the lacunæ it will be absent sometimes for a week or more, and then flow again profusely, whilst in gonorrhœa it is continual.

There is another state called gleet which differs from this, and requires another treatment. It consists in a preternatural discharge of the ordinary mucus of the urethra, and is frequently one of the concomitants of a general relaxation of the parts, either in consequence of excessive venereal indulgence or of masturbation. Gleets will sometimes disappear spontaneously, though, when neglected at first, they more frequently baffle all the means employed to remove them. Mr. Hunter was of opinion that this consequence of gonorrhœa was often incurable. "This disease," he says, "may be considered only as an inconvenience entailed on those who have had venereal gonorrhœa; no certain cure for it is known; it is similar to the fluor albus in women."

Sometimes a cure is effected by such means as

induce an inflammatory action of the parts; as irritating substances thrown into the urethra, a bruise, or a fresh gonorrhœa. "I knew a gentleman," says Mr. Hunter, "who threw into the urethra, for a gleet of two years' standing, Goulard's extract of lead undiluted, which produced a most violent inflammation; but, when this inflammation went off, the gleet was cured."

The following is an instance of a gleet cured by a bruise:—A gentleman, who had a gleet of eighteen months' duration, was thrown out of his seat when hunting, and his penis was so severely squeezed between the pummel of the saddle and his pubes, that a violent hœmorrhage ensued; this was succeeded by a very considerable degree of inflammation, pain, and the secretion of puriform matter; and when the inflammation subsided, he found that he had got rid of his gleet. Gleet is frequently found combined with, or dependent on, various morbid states of the urinary organs, which it is important to bear in mind, as these circumstances must very much modify our mode of treatment, and regulate our judgment with regard to hopes of success.

In unmixed cases of gleet, the most powerful and efficacious remedy is cantharides. They often effect a cure in five or six days, but may require as many weeks, though taken in very large doses before they seem in the least to affect the system; and in some rare instances their specific effects have not been produced, notwithstanding they have been given in doses so large as to affect the head

and stomach, and render a further continuance of their use improper. Cantharides may be exhibited internally in the form of powder, in combination with Chio turpentine, commencing with a quarter of a grain of the former, and five grains of the latter, three times a day, and gradually augmenting the dose until its specific action be manifest; but the tincture, as being more manageable and, at the same time, equally efficacious, is to be preferred. The administration of cantharides is to be begun in small doses, as twenty drops of the tincture three times a day, gradually increased. In the mean time, we must carefully watch the changes, which proceed with so much uniformity, that, if our instructions are obeyed, it is our own fault if ever the patient be surprised with untoward symptoms.

The effects produced on the system by the internal administration of cantharides are as follow: The pulse is increased in strength, the appetite is improved, the mind is rendered more cheerful, and the matter of the discharge from any diseased surface becomes opake, is inspissated, and assumes the appearance of pus. The matter of the discharge becoming gradually thick and opake, shows that the inflammatory action has commenced, and we must not augment the doses; if, however, as sometimes happens, this appearance remains stationary, or even goes off, when the dose is not increasing, then it must be augmented, but very cautiously. At length an uneasy sensation is felt about the pubes; uneasiness, or even pain, in the urethra; sometimes ardor urinæ, and repeated inclination to make water,

and the discharge has the form of pus. At this time, the doses must be diminished or omitted entirely, as the disagreeable sensations increase in severity.

The attack of pain will be at very different times in different persons after they begin to take the cantharides, though they individually take it in the same ratio. The quantity that some can take in a given time, without any sensible effect, is astonishingly great compared with the smallness of the quantity which alarmingly affects others; it almost invariably happens that the shorter the duration of the gleet, and the more healthy and stout the patient, the sooner are the inflammatory symptoms induced.

After the use of cantharides is discontinued, if the discharge gradually goes off along with the inflammatory action, the medicine is not to be repeated, for the cure will be effected without further assistance. But if, as the inflammation shall abate, the discharge becomes more thin, the use of cantharides is to be resumed and regulated as formerly; and when the inflammatory state is again induced, an injection of sulphate of zinc must be used. After a considerable degree of inflammation has been produced, the injection will moderate the symptoms and will promote the cure, to which, when the inflammation was more mild, it did not seem to contribute.

If from inattention on the part of the patient, or surgeon, or from any unforeseen circumstance, there should supervene strangury or even complete

retention of urine, great pain in the organs of urine and generation, sickness, vomiting, headach, rapid and strong pulse; warm fomentations are to be applied over the pubes, and smart saline cathartics are to be exhibited with diluents.

Camphor is said to be the very best and most powerful corrector of the effects of the cantharides. It certainly very much diminishes the activity of this medicine when given in combination; but whether it possesses the powers of an antidote, and will relieve or remove the morbid and dangerous symptoms which are produced by them, is not so clear.

To those who are affected with pain in the chest, hard, dry cough, or with symptoms of incipient phthisis, cantharides must not be administered. Persons predisposed to glandular swellings cannot use cantharides but with the utmost caution; and where the glands are indolent and of preternatural size, it would be very unsafe to prescribe this medicine, as inflammation and suppuration would be an almost infallible consequence. When cantharides disagree or prove inefficient, or when from constitutional idiosyncrasy its use is deemed objectionable, we must have recourse to the balsam, or soluble resin of copaiva, as an internal medicine, two or three times a day.

The soluble resin may be given in the manner recommended in the treatment of acute gonorrhœa, and the balsam may be conjoined with the sweet spirits of nitre, as in the following formula:

Take of Sweet spirits of nitre, fʒij.
Balsam of copaiva, fʒj.
Mucilage of acacia, fʒj.
White sugar, ʒss.
Camphor mixture, fʒivss. Mix.

A table spoonful to be taken two or three times a day. At the same time we are to act locally on the diseased part by bougies and injections; a bougie should be introduced every day or every other day, according to the irritability of the patient, and he should use an injection three or four times a day in the interim.

It was formerly the practice to use medicated bougies; but they possess no superior virtues to the ordinary bougie. They should be of such a size as to keep the membrane of the urethra fully on the stretch, so as to induce an altered action in the part, or bring on inflammation. Should they not prove sufficiently powerful for this purpose, they may be besmeared with oil of turpentine or strong mercurial ointment.

The injections in common use are various. They should be frequently changed, and none should be long persisted in that do not soon prove beneficial. The following is one of the best stimulating injections; one grain of the oxymuriate of mercury dissolved in twelve ounces of water; the oxymuriate may be increased to two or three grains, but should never exceed this latter quantity. Injections composed of the sulphate of copper and zinc, lime water diluted with an equal quantity of com-

mon water, and undiluted claret, have been severally used with good effect.

The use of injections should not be relinquished too soon, on the supposition of the patient being permanently well, as the complaint is apt to recur. It is generally advantageous to continue the injection for two or three weeks after the complete stoppage of the discharge.

There are certain cases in which internal stimulants are dangerous, injections ineffectual, and bougies inadmissible; but we are not without resource; for vesicatories applied to the perineum will often succeed in removing the disease; and when the glands in the urethra are affected, blisters will be found to be the most effectual of all remedies. Cold bathing in the sea, rough horse exercise, with the internal exhibition of bark and steel, if the constitution be debilitated, are useful adjuncts.

Whenever gleet becomes unusually protracted, we should suspect the existence of stricture, or of an irritable and tender state of some portion of the urethra; and if, on examination, this should prove to be the case, our efforts will then be directed to remedying this particular state, as the readiest and only effectual means of removing the discharge.

When the discharge proceeds from abscesses in the lacuna magna, and its vicinity, the best method of treatment is to poultice the little swelling until the formation of matter; and, this having taken place, the sooner an opening is made the better. When the abscesses are situated in the lacuna opposite the scrotum, the treatment must be exceed-

ingly prompt, otherwise the patient's life will be endangered; they should be early opened by free incisions, and these should be made larger externally than internally; the matter being evacuated, the abscess must be treated on general principles.

The preternatural discharge of the natural mucus of the urethra will generally be found in connexion with a morbid condition of the urethra. There will be found in some part of that canal, more especially about the membranous portion of it, one or more irritable spots which resist the introduction of a bougie, and these are readily cured by the introduction of a metallic instrument two or three times a week, after which the discharge ceases. The cure is facilitated by steel, bark, cold bathing, and all those means by which the tone of the system is restored, and it is aggravated by excess in drinking, &c.

CHAPTER II.

STRICTURES OF THE URETHRA.

A STRICTURE consists in a diminution or contraction of the natural calibre of a portion of the urethra; and is of two kinds—temporary and permanent.

Permanent stricture is occasioned by an alteration in the structure of the urethra, produced by chronic inflammation; it is usually slow in its formation, and so insidious in its approaches, that in many instances the obstruction has made great progress before the individual is aware that there is any impediment to the flow of urine. Indeed, it not unfrequently happens that the first intimation of it which the patient receives is from his surgeon, whom he probably consults for some complaint, apparently of a different character; when, on examination of the urethra, the real malady is discovered. It has often occurred to me thus to detect a stricture into which the smallest bougie could not enter, and which compelled the patient to rise several times in the night, yet he was totally ignorant of its existence, and even unaware that the stream of urine was otherwise than natural. But, although the change of structure, which constitutes permanent stricture, is usually the consequence of a slow and insidious inflammation, yet, occasion-

ally, it supervenes on acute inflammation, excited by local injury.

The temporary stricture is dependent upon a spasmodic contraction of the canal without any apparent organic change having taken place; it may exist only at a particular part of the urethra, but may prevail in a greater or less degree throughout the whole extent of the passage.

It has long been a disputed question, whether the lining membrane of the urethra be possessed of muscular power, and the point is still far from being determined; it is, however, perfectly immaterial, as far as regards the pathology, whether muscular structure can be demonstrated or not. We know, and are convinced from daily practical observation, that there is a power of contraction exerted so forcibly as to narrow the canal; we know also that this power of contraction is strongly excited by local irritants; and although it may act in some instances, from remote constitutional causes, independently of any obvious local cause, we are justified by analogy in concluding that the contraction arises from increased determination of blood to the mucous membrane. I cannot, therefore, admit the propriety of arranging strictures under the separate heads of inflammatory and spasmodic; for in all cases of what is designated inflammatory stricture, there always exists spasm; and in those cases which are described as purely spasmodic, occurring as they do in irritable habits, and where a less degree of vascular action conse-

quently is necessary to the effect, we find that the spasmodic contraction ceases under the use of means calculated to relieve the turgescence of the part.

Sect. I.—*Temporary Stricture.*

Temporary stricture essentially consists, as I have already stated, in a spasmodic contraction of the urethra to a greater or less extent, and is dependent upon an increased determination of blood to the part. It is sometimes produced by local causes, as the passage of a bougie, and not unfrequently occurs in conjunction with permanent stricture, the result of a chronic and less perceptible action, predisposing the parts to more active disease. It often happens, however, that a patient is suddenly seized with stricture of the urinary passage, without any obvious local cause: I have seen it follow accidents of various kinds with persons of irritable habit. Pain is not always present at the part; and, indeed, the first symptom that attracts attention in many cases, is the difficulty of passing urine; and this may amount to complete retention.

The absence of pain has been regarded as a sufficient reason for designating a stricture purely spasmodic, while those cases in which pain constitutes an important feature have been considered inflammatory. I do not pretend to say what is the actual condition of the blood-vessels in that form of stricture which exists without pain; I know that the affection is relieved by means which empty the

vessels, and I know also that a similar kind of spasm prevails in those cases acknowledged to be inflammatory. Whether there exists in the one case a simple increased determination of blood, and, in the other, that state of vessels to which the conventional term inflammation is applied, I cannot pretend to determine; it is sufficient for practical purposes to be aware that the only difference in treatment consists in a more free use of antiphlogistic means, according to circumstances.

The attacks of temporary stricture are usually sudden and require speedy relief, owing to the pain occasioned by a distended state of the bladder.

The treatment which I have usually adopted in cases of temporary stricture has been as follows:—the patient is put into a warm bath, and leeches are freely applied to the perineum; if the individual be plethoric, and the pulse offer no contra-indication, blood is taken from the arm to syncope; I then give a full dose of laudanum (forty or fifty minims) and a similar quantity of Hoffman's anodyne liquor. It is found after the use of these means, that the urethra becomes far less irritable, so as to admit of the passage of a catheter; while in many instances the urine will be expelled without the introduction of an instrument. It is never advisable, at first to attempt the use of a catheter; there perhaps may be some cases in which this practice succeeds—in which the contraction may

be overcome without the previous means recommended—but the great majority are aggravated by such treatment.

Sect. II.—*Permanent Stricture.*

The symptoms of permanent stricture in the urethra are various; of course, the most evident is, the diminution in the stream of urine; but singularly enough, as before remarked, this circumstance is frequently not first observed by the patient, but his attention is directed to some remote and secondary affection. After voiding urine, there is often a retention of a few drops in the urethra, which gradually ooze out when the whole appears to have been discharged; or, there may be forced out, by pressing on the under side of the urethra, a portion which had collected between the neck of the bladder and that part where the stricture is situated. In some cases, the urine at first flows without any unusual effort, in a stream nearly as large as natural; but, as the disease advances, the stream becomes contracted, and frequently misshapen: sometimes it is forked or divided; at others, it is spiral; or it forms, as it were, a sheath; or it rises perpendicularly to the penis; or it breaks and falls to the ground sprinkling. An irritation is felt in some part of the urethra, and a sensation of burning, as the urine passes through that portion; to this succeeds an irritable state of the bladder, the patient not being able to retain his urine for the usual length of time, but having occasion

occasion to rise several times during the night for this purpose.

In the more advanced stages of disease, when the stricture has become indurated and the contraction very narrow, the urine can be expelled only by drops, and even that cannot be effected without violent straining; the irritation of the bladder increases to such a degree that there is a call to make water every hour or oftener, and the patient is frequently obliged to rise ten or a dozen times during the night. The violent straining often evacuates the rectum, and is not unfrequently productive of hernia. Those labouring under strictures are occasionally attacked with an uneasiness and tenderness, or a shooting pain in the perineum, or a sense of itching in some part of the perineum, scrotum, or penis; a fluttering or pulsating feel in some part of the urethra; a smarting or lancinating pain in the glans penis; and herpetic ulcerations make their appearance on this part, or on the prepuce. All these symptoms are much aggravated by coition; sometimes this act is attended with pain, and there is an inability to emit the semen; at other times part of it passes, and the remainder steals away after the erection has ceased. In the former case frequently some of the blood-vessels of the urethra are ruptured and a bleeding takes place. Retention of urine has, occasionally, in this state been brought on by sexual intercourse: and this further illustrates the position which I have taken, of the spasmodic

contraction being produced by vascular turgescence.

In a great proportion of cases strictures are attended with a discharge from the urethra; sometimes of the natural mucus simply increased in quantity, but at other times of a purulent fluid, which is very liable to be mistaken for gonorrhœa. It may, however, be distinguished in the following manner. In stricture it will be found that the discharge occurred very quickly after connexion; the ardor urinæ is neither so severe, nor usually so confined to the anterior part of the canal; we often find that the same circumstance has happened before, and the cessation of the discharge generally takes place in a much shorter time than that resulting from gonorrhœa.

The difficulty of micturition is always influenced by change of temperature. It is usually rendered less by warmth; there are persons, however, who make water more easily by passing from a warm to a cold temperature. The penis is variously affected; sometimes the erections are excessively frequent and troublesome, amounting almost to priapism, and these may or may not be accompanied by seminal emissions during sleep; at other times the erections are weak and inefficient, and occasionally wanting. Sometimes there is swelling of one or more of the inguinal glands, or an enlargement of one or both testicles; occasionally a hardness is felt externally in the situation of the stricture; and there may be inflammation and suppuration in the perineum.

The severity of the symptoms is not always commensurate with the duration of the disease or the degree of existing stricture; for patients will sometimes have all the symptoms of stricture with great severity where the actual diminution of the canal is inconsiderable; and, on the contrary, those in whom the stricture is so narrow as not to admit the smallest-sized bougie, will experience little or no inconvenience. Although there is generally more or less disorder of the general health, yet, in some instances, this is very strongly marked; the stomach soon sympathises with the urethra, the tongue becomes furred, the bowels costive, and indigestion, with its long train of nervous ailments, becomes established. In some there is great depression of spirits, listlessness, sickness, want of appetite, and great irritability of temper.

It often happens that, from violent exercise or irregularities of living, a stricture, which previously had occasioned but little inconvenience, becomes greatly aggravated, and, under the use of depletory means, returns to its former condition.

In severe cases of stricture, where the inflammation has extended to the mucous membrane of the bladder, there will be a considerable quantity of mucus discharged with the urine, which separates on cooling, and, descending, adheres to the vessel. When the disease is of a very aggravated nature, the urine will be quite white from containing pus; occasionally it is bloody, indicating the existence of ulceration. In that state of stricture where the urine is loaded with pus, the patient will

experience frequent and severe rigors, succeeded by heat and sweating, resembling a paroxysm of intermittent fever. The attacks, however, do not come on with that regularity with which agues do, nor at the same time of day, and are removed by opium.

Numerous as the symptoms are, however, which have been mentioned as denoting strictures in the urethra, yet none of them are peculiar to that disease: therefore they cannot be depended upon, singly or together, as decidedly indicating the presence of stricture; the only method of putting this matter beyond the possibility of doubt, is to examine the canal by the introduction of an instrument.

Causes of Stricture.—With respect to the causes of permanent stricture, I have already said that the change of structure which occasions an encroachment on the calibre of the canal, is generally the result of chronic inflammation; and there is no cause to which strictures are so frequently and commonly imputed as gonorrhœa. John Hunter, however, expresses some doubt, whether stricture is ever referrible to gonorrhœa, although he admits that, as most men have laboured under this latter affection, it is difficult to refute the generally received opinion. Sir A. Cooper, on the other hand, says, that gonorrhœa, in ninety-nine cases out of a hundred, is the cause of strictures. There are, doubtless, numerous instances on record in which stricture has arisen from well de-

fined local injuries, and other cases, where it has existed at such an early age as to preclude the idea of a venereal origin. Mr. Hunter speaks of a case in which a boy four years of age was affected with stricture and fistula; and I have at this moment a distinct recollection of a severe case of stricture produced in a boy, by falling with his legs astride the gunwale of a boat.

Astringent injections have been set down amongst the causes of stricture; their imprudent use probably may have been followed by this effect; but, when judiciously employed, by speedily subduing the inflammation of the lining membrane, they may be considered rather as preventives.

It is an admitted principle, that long continued irritation is capable of producing inflammation; hence the irritation arising from a calculus in the urinary bladder, or from other diseases of this viscus, or of the prostate gland, occasionally leads to the establishment of morbid contractions of the urethra.

Strictures are said to arise from constitutional causes; but it is often difficult to determine whether the constitutional disorders which coexist with stricture be the causes or effects of that state, since they may reciprocally act on each other. That the former is sometimes dependent on the latter, is evident from its total subsidence on the removal of the stricture. Nevertheless, it cannot be doubted that, in a general derangement of the system, disease may and does fall on the mucous membrane of the urethra.

Strictures generally form between the ages of twenty and thirty. There is, however, much difficulty in establishing the precise time at which they first take place, as they often exist many years before they become troublesome or attract observation.

Situation of Strictures.—Strictures may occur in any portion of the urethra, but they are most commonly found in those parts which are naturally the narrowest; hence, the most frequent seat is immediately behind the bulb of the urethra —at the commencement of the membranous portion—at the distance of six and a half or seven inches, from the external orifice; the next situation in frequency is at four and a half inches; they are also met with at three and a half inches from the orifice, and sometimes close to it; and the external orifice itself is occasionally the most contracted portion of the canal. It rarely happens that a stricture forms in that portion of the urethra which passes through the prostate gland.

When the stricture is situate at the anterior extremity of the urethra, the contraction may be either immediately at the orifice, the canal behind being of its natural size, or the orifice may be of proper diameter, and the contraction just within the opening, opposite to the insertion of the frœnum: the latter is by far the most frequent occurrence and the most productive of suffering to the patient. Occasionally these states coexist in

the same individual, in which case the mouth of the urethra will be much narrowed by the extension of the integuments over it; on dividing this and attempting to pass an instrument, it will be resisted at about one or two lines down the urethra. In other cases the urethra terminates short of the glans penis, and is nearly closed by the common integuments. The effect of this contraction upon the whole urinary organs is most deleterious; it will induce stricture at the bulb and membranous part, succeeded by irritable bladder and disease of the prostate; and very often the latent irritation in the prostatic portion of the urethra gives rise to, or is accompanied by, chronic affection of the testicles.

There is considerable variety in the form, number, and extent of strictures. In general the disease occupies no great extent of the passage; and often there is merely a narrowing of a part of the area of the canal, as if a pack-thread were drawn across, the opening being in the centre. There is not, however, always an equal contraction of the canal in its whole circumference; the contraction may be confined merely to one side, while the other side is quite smooth; or there may be two or three of these strictures on one side. This form of the disease throws the passage to the opposite side, thereby rendering it difficult to pass a bougie. The narrowing may be limited to a line or two in length, or there may be a continuous diminution of the calibre of the urethra for an inch or more. It sometimes presents the appearance, as if a thin mem-

brane had formed across the urethra, leaving a small orifice in the centre, without any perceptible contraction in the surrounding spongy structure. In other cases, there is a circular contraction not only of the lining membrane, but also of the corpus spongiosum urethræ. Sometimes two or three inches of the canal will be diminished in capacity and rigid, while around this part the spongy substance is obliterated.

Frequently there is only one stricture, but occasionally several coexist in the same urethra. The membranous lining is sometimes puckered into longitudinal folds; but it more generally presents a surface of irregular circular contractions. Sometimes two strictures form within an inch of each other, and the intermediate portion of urethra becomes narrower than the rest of the canal. The urethra is sometimes irregularly contracted for an inch or an inch and a half in extent, forming a tortuous canal; there are even instances where the whole tube, from its membranous portion forwards, has been lessened in its diameter.

The strictured portion is generally of white colour, and almost always firmer and more compact than the other parts of the canal, and its structure is nearly cartilaginous; this is generally the case with strictures of long duration. Some strictures are so exquisitely sensible that the slightest touch occasions severe pain, while others are so very callous that they bear the rudest treatment without alteration.

Obstruction to the flow of urine produces greater muscular power in the bladder to expel it; hence this viscus thickens, the urethra situated behind the stricture becomes dilated, and the prostate gland is more or less affected. When the diseased part is very much contracted, that portion of the urethra immediately behind the stricture frequently ulcerates or is ruptured, and the urine is infiltered into the cellular membrane of the perineum, penis, and scrotum, giving rise to extensive sloughing, the formation of abscesses and fistulæ.

Treatment of Permanent Stricture.

The object in the treatment of permanent stricture is to restore the canal to its natural diameter; and this is to be accomplished either by producing absorption of the interstitial deposit which constitutes the obstruction, or by effecting its complete removal under a process of sloughing or ulceration. Absorption is induced by what is usually called "dilatation" of the strictured part, resulting from the frequent introduction of bougies or catheters. Ulceration may arise in the stricture from the continued irritation of a metallic instrument constantly worn, or it may be produced from the application of escharotics. Division of the stricture with a knife, or by means of a sharp instrument, introduced at the orifice of the urethra, and the tearing of the part, by making a forcible passage with a conical instrument, are also means occasionally had recourse to.

Permanent strictures, as I have already endeavoured to show, being so dissimilar in their form, situation, extent, and duration, it would appear preposterous to attempt the cure of all cases by one and the same means; although we must constantly have reference in all our variations of treatment to the two principles of cure which I have laid down at the commencement; upon these the treatment of stricture hinges.

The first point necessary is to obtain as accurate a knowledge as possible of the seat of stricture; the extent of the contraction, whether it be regular or irregular in its form, and whether it be of loose fungous texture, or firm and cartilaginous. For the purpose of examination, we make use of bougies, which are of four kinds—plaster, catgut, elastic gum, and flexible metal.

The common plaster bougies possess the advantage of having such toughness that they cannot break in the urethra; and, when softened by heat, such flexibility, without elasticity, that they easily accommodate themselves to the curvature of the passage.

Small catgut bougies are sometimes preferable to plaster ones, because they are stronger; but they require to be employed with great caution; for their elasticity gives them a constant tendency to preserve a straight direction, and hence they are liable to hitch in the urethra, and make false passages. In some cases of very narrow passage, we may frequently succeed in passing a fine catgut bougie into the bladder, where a cloth one cannot be in-

troduced; for the most part, however, the latter, if well made, are preferable, as they adapt themselves more readily to the little irregularities so frequently met with in cases of this kind.

The elastic gum bougies possess the advantage of great smoothness of surface, great flexibility and strength, and considerable durability; for they neither swell nor spoil by moisture. Almost the only objection to them is their elasticity, which renders them liable to the same objections as the catgut bougie.—If we are obliged to resort to the use of very small bougies for the removal of a stricture anterior to the curvature of the urethra, the flexible gum bougies are then as good as any instrument that can be chosen.

The metallic bougie is very flexible, has a highly polished surface, and is of sufficient strength to admit of considerable force being used in its introduction; but it is said that there is a risk of this instrument breaking.

Treatment by the simple bougie. The position of a patient, during the introduction of the bougie, is a matter of little importance; but, as it is done more conveniently when he stands with his back against a wall, I will describe the operation, supposing the patient to be thus situated. Having selected a bougie of a size proportionate to the orifice of the urethra, with a proper curve and oiled, the surgeon holds it in his right hand in the manner of a pen, and grasping the penis with his left hand, places his thumb and finger behind the glans; he then

gently extends the penis, and holds it from the body at about such an angle as it would naturally maintain during an erection. The point of the bougie is to be gently insinuated into the orifice of the urethra; and, as it is gradually pushed onward, the penis should be, at the same time, drawn forward, and if the instrument become entangled in any of the lacunæ or folds of the membrane, it must be gently withdrawn, and then rotating it, again pushed onwards until it reach the stricture. But if the bougie will not enter the stricture, an indentation with the finger nail should be made close to the orifice of the urethra, and the instrument then withdrawn; one of a smaller size should next be marked in the place corresponding to the impression on the first; this is to be introduced in like manner; and, when the marked part has reached the orifice of the urethra, the extremity will have arrived at the contraction which would not allow the first bougie to pass. If the second cannot be introduced further than the first, smaller ones must be tried until we meet with one that will, or until we ascertain that the contraction is so narrow as to prevent the passage of any instrument.

In many cases, where the stricture is very considerable, much trouble is occasioned by spasms, which either resist the bougie altogether, or will only let a very small one pass, though at another time a much larger one will pass with comparative freedom. We may here very frequently succeed by letting the bougie remain a short time in contact with the stricture, and then pushing it on;

or sometimes the point may be made to enter by rubbing the perineum externally with the fingers of one hand, whilst the bougie is pushed forward with the other.

If the bougie pass through the stricture, it should be gently pushed onwards; and when the point enters the bulb, the hand should be lowered so as to give it an elevation towards the membranous part of the canal, and then it should be gently but steadily carried forward into the bladder.

If all our attempts to pass a common bougie prove unavailing, recourse must be had to the soft or white bougie, to take an impression of the stricture. One of as large a size as the urethra will admit (after being oiled, and heated, so as readily to take the due curve of the urethra, and the point being softened by warm water), is to be passed down to the obstruction, and steadily pressed against it for about a minute, by which such an impression will frequently be made at its extremity as will determine the situation of the orifice, the degree of contraction, and the extent of the stricture, and enable us to pass the point of a common bougie of suitable size, curved on the model of the soft bougie, into the stricture. Great care should be taken in withdrawing the soft bougie not to alter the relative position of the instrument to the urethra.

The first introduction of a bougie is sometimes attended with very unpleasant effects, such as fainting, severe pain, and rigors; but these are less felt on every succeeding repetition of the operation,

and it soon causes little inconvenience; occasionally, the irritation is such as to compel us to desist from its use for a time.

The nature of the stricture having been ascertained by the introduction of the bougie, we proceed to the repeated use of this instrument, provided the obstruction be not very firm and unyielding; in which case we cannot excite the absorbents to action by the mere stimulus of occasional pressure, and it becomes necessary to produce an ulcerative action, either by the constant wearing of an instrument, or by the use of caustic. If we determine on attempting a cure with the common plaster bougie; the frequency with which the operation ought to be repeated must be regulated by the degree of irritation it excites, and the duration of that excitement. The irritation should be allowed to subside very considerably, if not entirely, before the bougie is again used. Ardor urinæ, in a slight degree, is generally felt for one or two days, and sometimes longer after the first introduction of the bougie; and, sometimes, the passing of a bougie will excite a little purulent discharge from the urethra; and, at other times, an increased difficulty in making water, with constant pain at the strictured part, for two or three days.

The bougie should be increased in size according to the facility with which the stricture yields, and the ease with which the patient bears the dilatation. If the parts be moderately firm, or very irritable, the increase of the size of the bougie should

be slow, gradually stealing upon the parts, and should be continued until one of the largest size passes freely. Whilst the stricture is narrow, the common wax bougie is perhaps the best instrument we can employ; but after some progress has been made in dilating the obstruction, a silver catheter may be substituted with advantage for perfecting the cure. Even after the obstruction has been removed, and a full-sized instrument can be passed into the bladder, the treatment is not concluded. The use of the bougie should be very gradually relinquished; indeed, the more gradually it is left off, the more permanent will be the benefit derived from it.

Some cases, attended with great irritability, will allow the size of the bougie to be increased but very slowly, and it may be necessary to continue the use of the same bougie repeatedly, after the stricture would admit a larger one; and, even when we begin to increase it, this must be done with the utmost circumspection, for a stricture will frequently begin to give way, notwithstanding the instrument made use of does not dilate the contracted part to its full extent.

When the irritation caused by the bougie abates, patients generally discover an amendment of the original disease. It is at this crisis that the bougie should be employed a second time; and, by similar circumstances, each succeeding operation should be regulated, till the instrument produces no inconvenience, beyond a few minutes after it quits the urethra; then it may be used every day, if such frequent operations are found serviceable.

We should always bear in mind that stricture can only be overcome or removed in a gradual manner; and if the instrument be introduced too often, or its size be increased too rapidly, the urethra will become so irritable, that a considerable time may elapse before we shall be able to proceed with the treatment: so long as the improvement is progressive, both patient and surgeon should be satisfied.

Where the stricture is very narrow, a common bougie, which is small enough to pass through it, has not sufficient strength to retain its form whilst passing down the urethra. Mr. Arnott has proposed, in such cases, to pass a full sized canula down to the stricture, and then to introduce through the tube the smallest common bougie, which being unimpeded by the contraction of the urethra, the opening is readily found, and, if the first bougie fail, others may be successively used without exciting increased irritation.

Patients frequently present themselves, complaining of obstruction to the passage of the urine, under circumstances exceedingly unfavourable to the introduction of any instrument. The canal being highly irritable, contracts so strongly on the bougie, throughout its whole extent, that it is difficult or impossible to ascertain the seat of stricture. In such cases, it is advisable to defer the examination for a few days; and, in the mean time, leeches should be freely applied to the perineum, the bowels be kept well open by saline purgatives, with a low diet, rest, and abstinence from wine or spi-

rituous liquors. With respect to the use of leeches, it is in most instances imperative during the cure by dilatation; and, indeed, there are many cases of recent stricture in which, probably from vascular turgescence, we are not able to pass, but with great difficulty, a very small instrument; yet, after the repeated abstraction of blood by leeches, the obstruction has been removed. Much advantage will be derived in some cases from an opiate enema, or from a suppository of two or three grains of opium placed in the rectum, the night before the urethra is to be examined. It will generally enable the patient to pass the night without being disturbed, when otherwise he would have been frequently under the necessity of rising to make water; and an instrument will pass readily, which under other circumstances would have been arrested by spasm.

In general, however irritable the bladder may have been at the commencement of the treatment, and however severe and distressing the symptoms resulting from this condition of the organ, it gradually subsides with the removal of the stricture.

When patients will submit to wear constantly an elastic gum catheter, there is no mode of treatment so beneficial, and at the same time so expeditious; for the pressure, which under the use of a bougie is only made at intervals, by means of a catheter is kept up without intermission, and the curative process goes on with proportionate rapidity. There are but few instances in which, by gradually ac-

customing the parts to the presence of the instrument, it cannot be worn continuously; but it is always advisable to commence with wearing the catheter for a short time, and to extend the period by degrees. The instrument must be withdrawn every third or fourth day for the purpose of cleansing it; and as the obstruction lessens, larger catheters may, from time to time, be substituted.

The curative process under this treatment may in some cases appear tedious, but it is a practice which, in my experience, has been eminently serviceable. I have found it useful to apply leeches repeatedly over the seat of stricture, and to use friction with the camphorated mercurial ointment.

In the case of a firm stricture, which may not yield by constantly wearing an elastic gum catheter, the flexible metallic instrument may be substituted with great advantage, with a view of inducing ulceration, and the consequent destruction of the stricture. If we look to the example of warts being destroyed by agents, which have no effect on the surrounding sound surface, we shall clearly understand how ulceration is effected in the diseased part of the urethra alone.

Cure by Caustic. The chemical substances employed in the cure of stricture are, the nitrate of silver and the fused potash.

The method of treating urethral stricture, by the application of nitrate of silver, was first brought

into notice in this country by John Hunter; although it must in candour be said that he was not the inventor, as traces of this practice may be found in several of the old writers, who speak of "the consuming of carnosities and caruncles." It has happened with this plan of treatment as with most others, both in medicine and surgery, that having been extolled beyond its proper merits, it has fallen below its just estimate. At the present time great prejudice prevails against the practice. That there are certain cases of stricture, however, in which the nitrate of silver is the best, if not the only remedy, I feel no hesitation in saying, while at the same time I will admit that it is a remedy capable of producing much mischief under injudicious use.

The particular circumstances under which I have had recourse to the application of lunar caustic, have been in those cases where the urethral obstruction has not yielded to the continuous pressure of an instrument,—where the deposit which constitutes the obstacle appears to be placed, if I may so use the expression, beyond the power of the absorbents,—and where the surrounding parts are so torpid that the process of ulceration cannot be excited by other means:—such is one description of cases requiring the use of caustic. Another is, where the stricture is altogether impermeable to a catheter or bougie; and here, an opening being first effected by the caustic, the cure may be completed by the wearing of instruments. A third instance for the employment of the nitrate of silver, is when the

stricture is so *habitually* sensitive as scarcely to bear the touch of a common bougie; the morbid susceptibility in such a case is entirely got rid of by the use of the caustic. I have said *habitually* sensitive, because a stricture and the surrounding parts to some extent may, and do assume a temporary irritability, under certain exciting causes.

The nitrate of silver produces in its application different effects on strictures, and much of this depends on the length of time and freedom with which it is used, although variable to a certain extent in different persons, according to the state of constitution. The bougie armed should be of the full size of the urethra, so that the whole base of the stricture may be destroyed. Before using it, a common bougie of the same dimensions should be passed down to the stricture, for the purpose of clearing the canal, and ascertaining the exact distance of the obstruction from the external orifice; this distance being marked on the caustic bougie, it is to be passed quickly down to the stricture, and is to be steadily retained in contact with it, by pressing with a moderate degree of force, the pressure being gradually diminished to prevent the bougie bending, as it becomes softened by the warmth of the urethra. The length of time it should be suffered to remain must depend in a great measure upon the sensations of the patient, as well as upon the kind of stricture and the effect intended; from half a minute, however, to a minute will in general be sufficient. The effect of the nitrate of silver is

to produce a slough, which should be allowed to separate and come away, previously to another application of the caustic, and this generally happens in about sixty hours. If, however, the application of the caustic has been gentle, the dead matter comes away insensibly, or only some very small shreds or filaments are observed in the urine; but when the application has been more severe, a distinct pellet of slough will be cast off with the urine, on the third or fourth day.

With regard to the length of the interval between each application of the caustic, this will depend on circumstances; generally about the third day will be the proper period; the local irritation, or other consequences, following one introduction being always allowed to subside before the caustic is again applied. The number of applications which it may be necessary to make will also depend on circumstances. If ever so little progress be made, its use should be persevered in, and we should not lay it aside because no obvious benefit follows each single application. In treating strictures with the armed bougie, if a hard and painful swelling take place in the perineum, its use must be immediately desisted from, or abscess in the cellular membrane will take place, and ulceration of the membrane of the urethra, giving rise to fistula in perineo.

When the lunar caustic comes in contact with the stricture, a burning, smarting sensation is produced, which continues for a few minutes after the instrument is removed; but sometimes will last for

twenty minutes or an hour. On first making water afterwards, a quantity of thick curdly matter usually comes from the urethra, and there is a slight degree of ardor urinæ; and if there have been a discharge from the urethra, it will be much increased. These symptoms usually remain throughout the first day, and afterwards gradually lessen.

If after a severe application of the nitrate of silver, the patient feel as if something plugged up the urethra at the part—an effect of the partial separation of the slough—he must be cautioned against forcibly expelling his urine, for this is apt to tear up the connexion and produce hæmorrhage. By allowing the natural process to go on undisturbed, there will be no breach either of the vessels or cells.

As a general rule, during the use of caustic, a bougie should not be passed into the urethra during the intervals of its application, except there be a suppression of urine, as it is certain to irritate the parts, forcibly dislodge the sloughs, and produce hæmorrhage. So long as the irritation produced by the caustic continues, the patient will often make water with greater difficulty than before its application; but this goes off as the irritation subsides.

It is not unusual for the caustic in some constitutions to affect the system, exciting severe paroxysms, resembling those of intermittent fever. These unpleasant effects may frequently be prevented by the administration of an opiate about an hour previous to the period at which the bougie is to be introduced.

Cure by the fused Potash.—The cases to which this caustic, so strongly recommended by Mr. Whately, are said to be applicable, are, the strictures which occupy a more considerable extent of the canal, and which are penetrable by the bougie; and a stricture which is characterized by a most remarkable sensibility. In the latter case, however gently the instrument be passed, or however soft its composition, the moment it arrives at the narrowed portion of the canal the patient complains of severe pain, and blood follows when the instrument is withdrawn. The general health is usually disordered in these cases, and the usual symptoms of stricture are severe. Hæmorrhage, however, even to a considerable extent, does not imply that the case in which it occurs is one of the kind here referred to, unless it be accompanied with a very remarkable sensibility; it being impossible, at the same time, to touch the stricture with the softest instrument without exciting pain and producing hæmorrhage. Under these circumstances, very considerable relief is experienced, often in a few hours, even by the first application of the fused potash; and after it has been used a few times, every symptom will be diminished in severity, the painful irritability will subside, and the tendency to hæmorrhage will cease.

In every case of stricture, before we make use of this caustic, it is indispensably necessary to pass a bougie into the bladder, of at least a size larger than one of the finest kind.

Mr. Whately gives the following directions for its

use:—Put a small quantity of kali purum upon a piece of strong paper, and break it with a hammer into small pieces, about the size of large and small pins' heads; and in doing this care should be taken not to reduce it to powder. Thus broken, it should be kept for use in a vial closed with a ground stopper. The bougie intended to be used should have a proper degree of curvature given to it, by drawing it several times between the finger and thumb of the left hand; and before the caustic is inserted the exact distance of the stricture, to which the caustic is to be applied, from the extremity of the penis must be ascertained. For this purpose, the bougie (which should be just large enough to enter the stricture with some degree of tightness) is to be passed in a gentle manner into the urethra; and when the point of it rests at the stricture, which it almost always does before it will enter, a notch is to be made with the finger nail on its upper portion, without the urethra, exactly half an inch from the extremity of the penis. The bougie is then to be passed through the stricture in order to convince the operator, that he can readily do the same thing when it is armed with caustic. After this it must be withdrawn, and a small piece of the fused potash inserted into its point in the following manner:—A small hole, about the sixteenth part of an inch deep, is made at the extremity of its rounded end; the extremity of the bougie should then be made perfectly smooth with the finger and thumb, taking care in doing this not to close the hole in its centre. Some of the broken caustic is now put

upon a piece of writing-paper, and a piece less than half the size of the smallest pins' head should be selected; the particle indeed cannot be too small for the first application. This is to be inserted into the hole of the bougie with a pocket-knife, or some such instrument, and pushed down into it, so as to sink the caustic a very little below the margin of the hole: and, in order to prevent the potash from coming out of the hole, it must then be contracted a little with the thumb-nail, and the remaining vacuity filled up with hog's-lard. This last substance is intended to prevent the caustic from acting on the sound part of the urethra, as the bougie passes to the stricture. The bougie must be oiled when it is completely prepared for the office it is to perform.

When the bougie has reached the anterior part of the stricture, it is to rest there a few seconds, that the caustic may begin to dissolve; it is then to be pushed on gently about the eighth of an inch, after which there must be another pause for a second or two; the bougie is then to be carried forward in the same gentle manner till it has got through the stricture. When, in any particular case, a bougie thus armed stops at the stricture, and seems to refuse proceeding any further, the difficulty of passing it through the contraction is to be overcome by extending the penis, and at the same time pressing the bougie gently forward. When the caustic bougie has passed through a stricture, it is to be immediately withdrawn, by a very gentle motion, to the part at which it was first

made to rest awhile; and after this to be passed very slowly through the stricture a second time, but without letting the bougie stop in its passage.

If the patient complain of pain, or if he be faint, which is sometimes the case in the first operation, the bougie is to be immediately withdrawn; but if these effects are not produced, the operation of passing and withdrawing the bougie through the stricture may be repeated once or twice.

If the patient felt no pain under the first application of the fused potash, a piece, a small degree larger than was used before, may be selected for the succeeding attempt; but if the first application gave pain, there should be no increase made in the quantity of caustic. At the end of seven days, the caustic is to be repeated a third time; and at this, and all future applications, the bougie upon which it is applied should be increased in size, in proportion as the aperture of the stricture dilates.

The frequency with which the fused potash may be repeated must be regulated entirely by its effects; any irritation that may be excited must be allowed to subside, or nearly so, before another application; and, in proportion as the irritability of the part abates, the quantity of the potash may be increased. Every succeeding bougie should pass with some degree of tightness through the stricture, and should be moved backwards and forwards several times, either slowly or more quickly, as the patient best can bear it, till the caustic is dissolved; and the operation is to be repeated in this manner, until the contracted part of the urethra is dilated, if pos-

sible, to the natural size, which is said to be generally practicable in recent strictures.

Where there are several strictures, the caustic is to be applied only to one at a time, commencing with that in which the contraction is greatest, in whatever part of the urethra it may be situated. But in cases of old and very narrow stricture, if the contractions are near to each other, it is recommended to apply the caustic to all at the same time.

A slight scalding in making water, and a trifling discharge during the first day or two, are commonly produced by the application of the fused potash; but in the majority of cases in which it is used it is said to give but little pain, even in the first instance of its application.

When the fused potash is applied to an external part of the body, it acts as a powerful caustic in destroying the part and forming a large and deep slough; but, it is argued, that when the point of a bougie, armed with the potash, is dipped in oil or covered with lard, the caustic is rendered mild, and by the time it reaches the stricture is little else than a liquid soap, with a large proportion of alkali, and which much assists the passage of the bougie; that it deadens the surface of the urethra, and subdues the inflammation, but is not sufficiently powerful to produce a slough; that it excites the secretions more, and is less liable to produce hæmorrhage than the nitrate of silver.

Having given a fair statement of what has been said in favour of the fused potash by one of its most zealous advocates, I may, perhaps, be al-

lowed briefly to express my own opinion of the practice, founded on observation. It is, that from the soluble nature of the potash the application cannot be limited to the diseased structure, and by spreading over an extensive sound surface great mischief is frequently produced.

It has been said that strictures of a ligamentous or cartilaginous nature are not readily acted upon by the lunar caustic, and that in such cases a more active escharotic is necessary, but I have never witnessed an instance of stricture which did not ultimately yield to the repeated application of the nitrate of silver.

It usually happens that only a small portion of the urethra is included in a contraction, but it sometimes occurs that a considerable length of the canal is continuously lessened by a thickened state of the lining, in which case a question arises as to the propriety of using caustic. This kind of stricture, it may be observed, is not very difficult of removal, provided the disease be not of long standing, or, what is of more consequence, the membrane be not materially altered in its structure; should these circumstances co-exist, the case then forms one of the most difficult that is met with in practice. It rarely happens, however, that the stricture is so changed but that the urethra may be restored.

The mode in which these strictures are formed may be, either that two separate ones have existed near to each other, and the interspace becomes sub-

sequently contracted, or the whole space may have been simultaneously affected. If an instrument be passed to a stricture of this kind which has long existed, the sensation afforded is analogous to that met with in those cases for which the nitrate of silver is recommended, and probably depends on an alteration in the texture of the affected membrane. If an instrument be passed through the contraction, the sensation experienced by the operator is strikingly different from that which he feels when passing it through an ordinary stricture, for as it proceeds we do not find that it moves more or less freely, as is usually the case, but that its progress is continued through a continuously narrow space. The difficulty in withdrawing the instrument is also a striking feature in the long stricture; in other cases, when this impediment occurs, we feel a sort of jerk when the point has repassed the contraction, the instrument being then drawn out with ease; but, in the long stricture, the difficulty is much greater, and we cannot recognise, in the same manner, or with the same accuracy, the moment when it ceases to offer an impediment to the return of the instrument.

The best method of subduing this stricture is by the continued employment of the catheter; although it may not perhaps in every instance prove successful, yet when properly conducted it affords greater advantages than any other treatment which has been proposed. Where two or more strictures also occupy the canal, they may, by this means, be all removed at the same time. It is, however, of

course essential, before this practice be entered upon, that the urethra be capable of admitting an instrument to be passed into the bladder. A smooth, elastic gum catheter is the best instrument to use; this being introduced the patient must be put to bed and recourse had to all the usual means for preventing or diminishing irritation; the diet should be spare, and the drink of a mucilaginous nature, and attention should be paid to keep the bowels gently lax. If the patient suffer much, an opiate enema may be administered. If an instrument cannot be introduced, it will be right to apply the lunar caustic, as, in some instances, by destroying certain points of obstruction, the remainder yield to the pressure of the catheter.

In the case of obstruction to the exit of urine at the extremity of the penis, resulting from malconformation, or as a consequence of venereal ulceration, distension of the contracted portion by the repeated introduction of instruments, and even the application of caustic bougies, for months together, will not be productive of the slightest permanent benefit.

The only effectual method of treating this morbid condition is to divide the membrane at the orifice, and the stricture opposite the frœnum, with a small knife or lancet. The pain which this causes is momentary; and the hæmorrhage, unless there be much previous inflammation, is generally very trifling, and can always be restrained by pressure

and the application of cold. When the bleeding has ceased, a very little lint, smeared with oil or ointment, should be introduced into the cut to prevent the cohesion of the divided edges; and a portion of a conical metallic bougie should be introduced, once or twice a day, to the extent of an inch, for some time, to maintain the passage until the surface of the divided edge has skinned over.

Where the urethra terminates short of the glands, and is nearly closed by integument, all that is required is to slit up the integuments and expose the urethra.

Treatment of stricture by incision. The urethra occasionally becomes so much contracted that the urine scarcely ever passes otherwise than by drops; and the change of structure in the mucous membrane of the canal is so considerable as sometimes to acquire almost a cartilaginous texture, and the removal of the stricture by any of the means beforementioned is exceedingly tedious. The situation of a patient thus circumstanced is most distressing; the constant irritation and straining to which he is subjected, and the frequent occurrence of retention of urine, render him desirous of submitting to any treatment which promises a speedy alleviation of his sufferings.

In these cases, the disease being generally seated in the membranous portion of the urethra, an operation from the perineum is readily performed for the division of the stricture and the introduction of an instrument, over which, the parts are subsequently

to be healed and the free continuity of the canal established. Fistulous openings being in general the concomitants of long standing and obstinate stricture, we may, at the same time of removing the obstruction, likewise effect the healing of the sinuses.

In performing the operation the patient is to be secured in the same manner as for the lateral operation of lithotomy. The operator passes a grooved staff down to the point of obstruction, in which situation it is to be securely held by an assistant; and an incision is then made from the external parts to the point of the instrument, and through the stricture. The next object is to convey an instrument through the posterior part of the wound into the bladder, for which purpose the grooved staff is to be withdrawn and an elastic gum catheter introduced in its stead. The only difficulty in this operation consists in finding the urethra from the wound; indeed it will in some cases contract so much as to be extremely perplexing. In order to facilitate the accomplishment of his object, the surgeon should be provided with a long, elastic gum tube, at least twice the length of the common catheter, for then he can draw such considerable portion of it through from the anterior part of the canal, as will enable him to turn round the point and direct it to any part of the wound in his endeavours to find the urethra, with the same facility as if he were employing a separate instrument. Having got it into the bladder, he should withdraw so much of its

length through the glans penis, as only to leave that ordinarily given to the catheter in the canal, and cut off the superfluous portion.

It is not advisable to remove the instrument for some days, that the parts may have every opportunity of healing over as quickly as possible; if it be withdrawn at an earlier period, considerable difficulty will be experienced in again introducing it into the bladder. It may remain as long as three weeks without any particular inconvenience; but it will not generally be prudent to allow it to continue so long, as it becomes so much encrusted with sabulous or calculous matter as to render the removal difficult and painful.

The after-treatment must be regulated by circumstances. If no particular irritation supervene, absolute rest, low diet, and keeping the bowels regular will be sufficient. The lighter the local applications are the better, simple dressings alone being requisite. If, on the contrary, the irritation should prove considerable, its removal must be attempted by active local depletion, by warm baths and opiates, since it is highly desirable to avoid withdrawing the instrument if possible.

This operation is difficult to perform, if the parts are much thickened and diseased by the previous repeated occurrence of abscesses and fistulæ. In an individual so situated, the parts will have become so changed in structure and appearance, that the most expert anatomist may be foiled in his attempts to discover the urethra. It is, however, at best a very severe operation for the removal of a

very distressing complaint, but nevertheless is sometimes advisable.

Treatment by the armed stilette.—An attempt has recently been made to revive the exploded practice of dividing the stricture by means of a cutting instrument introduced within the urethra. In a work lately published, Mr. Stafford, formerly house-surgeon to St. Bartholomew's Hospital, has related several cases of impermeable, as well as permeable strictures, successfully treated by the use of the stilette. The instruments which Mr. Stafford uses are of two kinds; the one adapted for those cases in which a bougie or wire can be passed, and the other for cases where the obstruction to the passage of an instrument is complete. For operating upon permeable strictures, a round silver graduated sheath is employed, open at both ends, of the size of No. 10 catheter, but with rather a less curve; in the sheath is a stilette, hollow and open at both ends, having at one end two oblong lancets, and at the other a handle resembling a button; the stilette fits into the sheath, and by pushing the handle, the lancets project from the extremity; when used, the instrument is passed along a wire previously introduced, and the lancets are thrust forward on the side of it. The armed stilette, intended for the division of impermeable strictures, resembles the former, with the exception, that instead of its being hollow it is solid, and there is but one lancet.

The exact distance of the stricture from the ex-

tremity of the urethra is to be ascertained before using the instrument. In the armed catheter, intended to divide strictures over the wire which serves as a guide, the wire must be introduced through the stricture first; the mode of accomplishing this is by passing the smallest possible sized catheter, made to contain the wire, into the bladder. The wire, which is double the length of the catheter, and blunted at one end so that it may not injure the bladder, is then pushed forward, and the catheter gradually withdrawn, by which the former is left in the canal of the urethra. The armed catheter is then passed over the wire, until its point rests against the stricture (which is known by means of the graduation), and being held securely in such position, the handle of the stilette is pressed gently and gradually. As soon as any impression is made the lancets should be allowed to retire into their sheaths, and the blunt point of the instrument urged forward; if it do not pass on, the lancets may be again used as before. After the stricture is divided, the armed catheter should be withdrawn, and its place supplied by one of elastic gum of the same size; which should remain for a day or two, to prevent the reunion of the divided parts, and to preclude the possibility of extravasation of urine. On its removal a bougie is to be passed twice in the week, or as often as may be judged necessary, for some time; and the same treatment adopted as for stricture in general.

The armed stilette, intended to divide impermeable strictures, is to be used precisely in the same

manner as the other, of course excepting the wire, which cannot be introduced; and the same after-treatment is to be pursued.

The hæmorrhage which follows the *wounding*, I will not say the division, of the stricture, by the instrument, is said by Mr. Stafford to be inconsiderable, and the pain very trifling. Inflammation, he admits, may occur, but in his practice it has never been great, and he considers it referrible to the irritation excited by the catheter being left in the bladder, rather than to the operation.

Hæmorrhage and inflammation are not, in my opinion, the only circumstances to be dreaded; there is great risk of making a false passage when the stricture is impermeable, and where a pointed cutting instrument is thrust blindly on through a part rendered tortuous and irregular from long-standing disease—consequently where anatomical knowledge is of no avail. It is to me utterly incomprehensible how the instrument in question can be supposed to effect the *division* of a stricture. If we take for example, a case in which the whole circumference of the canal is continuously narrowed to some extent from a general thickening of the lining membrane, or a case where the obstruction is confined to the lower part of the canal, beneath which a deposit has taken place—how can the stricture be divided in either case by an instrument cutting on each side? That in some cases, ulceration and consequent destruction of the stricture may result from wounding the diseased part, I am disposed to admit, and the presence of the catheter

favours this process; but the nitrate of silver effects the same object with more certainty and far less danger. The operation now attempted to be revived was practised at a public hospital in this metropolis, by a surgeon of the highest eminence, and with instruments similar to those recommended by Mr. Stafford, and the practice was abandoned from the evil consequences which ensued.

It is necessary to make a few brief remarks on the practice of forcing a stricture, by means of thrusting a conical-pointed instrument through the obstruction; for which purpose a sound or a silver catheter, slightly curved, is made use of, with sufficient force to make its way by laceration. This method of treatment I do not hesitate to stigmatise as most barbarous and revolting; the sound part of the urethra is very often ruptured by the attempts, and false passages are produced.

Sect. III.—*Bleedings from the Urethra.*

Sometimes, in consequence of the introduction of the catheter, and often during the treatment of strictures by caustic, hæmorrhages, more or less profuse, take place from the urethra, which require surgical aid.

The best treatment is to press the forefinger and thumb upon the urethra, deep in the perineum, and observe if the bleeding is controlled; and if not, to bring the hand a little more forward. Proceeding carefully in this way, the precise spot from whence the blood flows may be ascertained, which

will generally be from that part of the urethra opposite to the symphisis pubis. A compress should be placed upon the part, secured by a roller carried round the loins and brought up between the thighs. The bowels should be opened, and to lessen the disposition to hæmorrhage blood may be taken from the arm.

Sect. IV.—*False Passages in the Urethra.*

It sometimes happens that an instrument being passed in a wrong direction, either ruptures the membranous lining of the urethra, or excites ulceration, and on each succeeding time of being used it is very apt to pursue the same course, and reproduce one or other of these effects, by which the sinuosity is deepened. When a false passage has been made by a bougie, it is generally situated in the smaller curvature of the urethra near the pubes, or in the larger curvature in the bulb, just before the commencement of the membranous part of the canal. In the former of these situations, it is most frequently the effect of small bougies hitching in the lacunæ of the upper surface of the urethra; in the latter situation, it seems to be most frequently the consequence of using middle-sized or large bougies, cold, stiff, and straight, which incapacitate them from yielding to the natural bend of the canal, and cause them to push through its inferior and posterior surface.

False passages, caused by catheters wounding the urethra, generally occur in the bulbous or prostatic parts. If, however, the false passage origi-

nates close to a stricture, and has been occasioned by the diseased part turning off the point of the instrument upon the adjoining more soft and healthy part; then, as every part of the urethra is liable to strictures, so any part may be the seat of a false passage.

When false passages are situated at either of the two curvatures of the urethra, they will generally be found on the convex side of it; if situated near the pubes, they take a direction towards the dorsum penis, and if met with about the bulb, they almost always take a direction backwards towards the rectum.

False passages, considered in themselves, are not of consequence, and they acquire importance only where they obstruct the necessary introduction of instruments further along the urethra; for if, under these circumstances, the patient should have a retention of urine, it may happen that puncturing the bladder becomes requisite.

Where it is necessary to pass instruments through an urethra in which there is a false passage, it will be of material advantage if we can learn the size of the instrument that inflicted the injury; and to effect the operation with any degree of certainty, it is absolutely necessary to be acquainted with the exact situation of the false passage and the course it pursues. Without this knowledge, there will be no rule for guiding the point of the instrument; and if it be pushed along to find the way for itself, success must be merely accidental.

If at the commencement of the treatment of a stricture, the bougie could be passed into the bladder, and some time afterwards cannot be urged so far, excepting now and then; and if at those times, when the bougie is stopped, the operation is attended with pain and perhaps bleeding, then we may be almost certain of the existence of a false passage, and the more so if this impediment occurs at either of the curvatures of the urethra.

The instrument to be used in these cases should possess a considerable degree of curvature; and whilst being introduced, the convexity of it must be inclined towards the false passage, which will carry the point of the instrument against the opposite side of the canal. There will also be great advantage in using a large instrument; for, if it exceed the size of that which made the false passage, then the latter will of course be eluded. An elastic gum catheter, or the hollow bougie, are the best instruments to pass along an urethra in which there are false passages; for if either of these instruments be used with a curved brass wire stilette, we have more command over their points to guide them in different directions within the urethra than we have with any other kind of instrument. They likewise possess one peculiarity, which gives them a decided superiority, that of allowing their curvature to be very much varied, and that suddenly, even whilst they remain in the urethra. Thus when introduced, if the stilette be withdrawn a little way, the moment before the point of the instrument arrives at the false passage, it increases

the curvature instantly, and throws the point away from the false passage against the opposite side of the canal, and at the same time gives such a flexibility to the point that it may glide close against the perfect side of the urethra without risk of wounding it.

If the canal beyond the false passage admit a tolerably large instrument, a plaster bougie may be made to answer the purpose very well; it must be softened, and have a proper degree of curvature given to it a few days before it is used, and in this state it must be passed down the urethra hastily, lest it should become soft before it has gone by the false passage.

To avoid a false passage running towards the dorsum penis, and situated near the pubes, the stiff and curved plaster bougie should be conveyed down the urethra, with its convexity towards the patient's abdomen, which will keep the point of the instrument in contact with the under surface of the urethra, till it gets under the arch of the pubes: it may then be turned round and carried forward as usual. If, however, the false passage be situated near the bulb, and pursues a course towards the rectum, then the instrument should be introduced with its concavity towards the patient's abdomen, and as soon as the point of the instrument arrives below the arch of the pubes, the operator must lower his hand to elevate the point of the bougie over the false passage on the inferior or posterior surface of the canal.

Provided the false passage be in a part of the

urethra, at a distance from any stricture, the foregoing directions, properly attended to, will conduct an instrument into the bladder with tolerable certainty; but when the false passage commences close to a very narrow stricture, we have scarcely a chance of success. In that case, the sinus ought to be laid open throughout its whole length, and made to granulate, otherwise it may be a source of great trouble at a future period; and the operation should be finished by passing an elastic gum catheter into the bladder, where it must be retained until the wound is healed.

If a stricture be complicated with false passage, it will not on that account require any peculiar treatment. The cure must be conducted on general principles; the means above recommended being employed for avoiding the false passage, and conveying the instrument beyond it. Should this, however, not take place, and the false passage unavoidably obstruct the further progress of instruments that are necessary to be introduced, there remains no other resource than an operation very similar to the one recommended for the cure of strictures complicated with urinary fistulæ. Whilst operating to cure a false passage, we must remember, that, if it be situated on the under surface of the urethra, we shall probably cut into the false passage first, and then the incision must be carried deeper to find the urethra.

Sect. V.—*Retention of Urine from Stricture.*

A person affected with permanent stricture is

continually liable to retention of urine, inasmuch as the morbid condition of the urethra renders it liable to be acted upon by various exciting causes, which produce an inflammatory turgescence and spasm, so as to form a complete obstruction to the passage of the urine.

The symptoms are, a constant desire to make water, and great distress from inability to do so; intense pain in the region of the bladder, which may be felt as a hard circumscribed tumour in the hypogastric, and sometimes even as high as the umbilical region; the abdomen is tense and painful; there is high fever, and if the affection continues long unrelieved, great disturbance of the cerebral functions. In such a case, if speedy remedial means be not adopted, the patient sinks.

Taking into consideration that the affection results from increased vascular action, the primary and most obvious indication is to lower such action; and provided there be no circumstances to contra-indicate it, blood may be taken from the arm to syncope, the patient put into a warm bath, and leeches freely applied to the perineum; at the same time, a full dose of opium or laudanum should be exhibited. All these means must be had recourse to before attempting the introduction of a catheter; and it will generally be found, that under the syncope induced by venesection, combined with the sedative effect of the opium, either the urine will flow spontaneously, or the parts will offer no

resistance to the passage of an instrument. In these cases the elastic gum catheter is preferable; the size to be used must be of course determined by the patient's description of the stream of urine which he ordinarily passed, previous to the attack of retention.

There has been some discrepancy of opinion respecting the period at which it is proper to attempt the introduction of the catheter. I think that every practical man will coincide with me in opinion of the utter impossibility of passing an instrument, in a majority of cases, until means have been taken to relieve the irritable condition of the parts, and therefore the question is set at rest, as far as these are concerned. That in some cases a catheter may be forced on, and that it is advisable at all times gently to ascertain the real amount of obstruction, are well known facts; but I repeat, that generally the instrument cannot be passed, and if the attempts be long continued, there is an increase of mischief.

In cases of retention of urine, where the symptoms do not imperatively demand immediate and prompt remedy, other means than those enumerated may be employed; cathartics may be administered, so as to induce a free and copious evacuation of the bowels, or the tartrate of antimony may be given in nauseating doses; the muriated tincture of iron, as recommended by Mr. Cline, may also be tried in doses of fifteen or twenty drops every ten minutes.

An enema of tobacco, either in fumes or infu-

sion (one drachm of the dried leaves to half a pint of boiling water), is a very powerful and generally efficacious remedy. This practice, first suggested, I believe, by Mr. Howard, in his treatise on the venereal disease, I have several times adopted with success, after the failure of other means. Three cases are detailed by Mr. Earle, in the sixth volume of the medico-chirurgical transactions, in which he tried this remedy as a *dernier ressort*, and succeeded in relaxing the spasm, and producing a flow of urine. The tobacco, however, generally acts very powerfully, and sometimes produces most alarming syncope, with feeble and intermittent pulse, and cold clammy sweats over the whole body. Its use, therefore, should not be indiscriminately resorted to in every case, but reserved for those severe instances where more simple means have failed.

Sect. VI.—*Rupture of the Urethra, and Extravasation of Urine.*

The urethra may be ruptured in consequence of external injury, as by a person falling astride any hard body; or it may be the effect of an obstruction in the canal from impervious stricture, or of a calculus lodged behind the stricture, in consequence of which, the flow of urine being arrested in its progress, that portion of the canal immediately behind the stricture becomes distended, and subsequently inflames and ulcerates. The erection of the penis in certain states of stricture, or the forci-

ble introduction of instruments into the urethra, may also give rise to it. When a person labouring under stricture attended with great irritability of the bladder, and who has to strain and force hard to pass a few drops of urine, feels, on closing his legs, as if there were a tumour betwixt his thighs; or if, in an irritable stricture, strangury should succeed to the introduction of the bougie, and be followed by a paroxysm resembling an ague, with a sensation of great tenderness, heat, and swelling in the perineum, together with urgent and forcing pains to make water, there is great danger that the membrane of the urethra is about to give way.

If a patient after such symptoms, and straining hard to make water, feels at last that it is flowing, but none appears outwardly, although the bladder is emptying, we may conclude that this accident has occurred, and that the urine is passing into the cellular membrane of the perineum, scrotum, and penis. If a vent be not immediately provided for the fluid, the scrotum, perineum, and prepuce become speedily distended; the integuments covering these parts inflame, and to this succeeds copious suppuration, with extensive destruction of the cellular tissue. Fever of a typhoid character supervenes; the tongue becomes coated with a brown fur; and there is pain and tenderness in the hypogastric region, followed by sickness, hiccup, and diarrhœa.

In the generality of cases, the extension of inflammation is so rapid that the extravasation is

quickly discoverable by the appearance of the skin; in some instances, the only external indication consists of a slight tumefaction in the perineum. The swollen part is very tender, and there is deep seated pain in the perineum, increased by any attempt to make water; very little, or sometimes none at all, passing by the natural channel.

Sometimes the breach in the urethra communicates with the cavernous substance of the penis, in which case the urine, instead of being infiltrated into the common cellular membrane, will pass into the cells of the penis, causing great distension of this member, followed by gangrene.

Rupture of the urethra is a very alarming occurrence, and requires the greatest promptitude and decision on the part of the practitioner. If the quantity of urine extravasated be small, and a catheter can be introduced into the bladder, it should be permitted to remain there, by which means further extravasation will be prevented, and that already effused will be absorbed. Where the extravasation is considerable, it is absolutely necessary immediately to rid the cellular tissue of the acrimonious and highly destructive fluid, by making a free incision into the perineum, so as to lay bare the urethra. The stricture should then be divided, if there be one; and to prevent a recurrence of the extravasation a catheter should be introduced into the bladder. The scrotum should also be scarified in the most depending part, so as to afford a free discharge to the urine and future sloughs. Punctures

of the scrotum are insufficient even to empty the cellular texture of the extravasated urine, and quite unfit for preventing the urine taking the same course a second time. For the most part, the urine bursts into the perineum, and is carried by the fascia of the perineum forward into the scrotum; in which case, the opening into the scrotum must be at the back part, the point of the instrument being directed backwards, so as to cut freely through the fascia, and give issue to the urine as it escapes from the perineum.

The extravasation sometimes takes place more anteriorly, and the œdema of the prepuce is the first sign of the approaching danger. It is therefore proper, in all cases, to examine the urethra with a bougie in order to ascertain the place of the stricture, so that the incisions may be directed with reference to the spot from whence the urine issues from the urethra, and which is always behind the stricture.

It is not always easy to find the canal of the urethra in these cases, and sometimes the operation is attended with extreme difficulty, when the incision is made in the perineum at the usual place for the performance of the lateral operation of lithotomy. The object is much facilitated by making the incision along the raphé of the perineum, as the urethra lies directly below, and parallel with this line, and consequently is much less liable to be missed.

The local irritation may be soothed by emollient

fomentations. The parts may be poulticed until the sloughs separate; and when the sore assumes a healthy appearance, the sides of the wound may be brought together and retained by adhesive plaster, which will greatly expedite the healing over the catheter. The system should be supported against the influence of the extensive mortification which ensues from the infiltration of the urine, by a nourishing diet, together with bark, opium, ammonia, and camphor; wine, porter, and brandy should be freely given, if a sinking of the vital powers is threatened.

In two cases of rupture of the urethra from external injury to the perineum, which I treated, there was complete retention of urine without the slightest extravasation; much difficulty was experienced in finding the posterior portion of the urethra, it having in both cases receded, and, as it were, buried itself in the cellular tissue.

In some instances there may be so considerable an extravasation of blood as to form a tumour in the perineum, which, by its pressure, prevents the introduction of the catheter, and it is in consequence necessary to cut into the perineum, to let out the blood, to facilitate the introduction of the instrument.

When the urethra has been ruptured by external violence, not being accompanied with, or preceded by, a diseased state of the canal, the after-treatment is much more simple than in an opposite state of affairs.

Sect. VII.—*Fistulæ in Perineo.*

Fistulous openings in the perineum, communicating with the urethra, are produced from various causes. Sometimes they succeed to the extravasation of urine, treated of in the last section: more frequently, however, the irritation of the stricture, or perhaps of the remedial means used for the cure of the stricture, causes a small abscess to form in the adjoining cellular membrane; and this discharging itself into the urethra, the urine gains admission into the cavity of the abscess, and excites inflammation and suppuration more externally; or the abscess points and bursts in the perineum, and the ulceration, extending to the urethra, forms a communication between the two. In both these cases, the urine escapes partly by the opening and partly by the urethra.

These cases often get well spontaneously, without becoming fistulous, and sometimes even after they have become so; for, as the communication between the urethra and perineum is direct, no urine lodges, and the wounds granulate. Successive inflammations, however, sometimes arise, and the urine passing with more difficulty, new abscesses are formed, giving rise to fistulous openings, which extend to different parts of the scrotum and perineum, and round about the anus, and occasionally form communications between the urethra and rectum. When a number of these fistulæ exist, it occasionally happens that some of them heal spon-

taneously, whilst others form, and sometimes those which had healed break out again.

In the treatment of fistulæ, it is seldom necessary to do more than destroy the stricture, and restore the urethra to its natural calibre; for it is the difficulty opposed to the exit of the urine by the natural passage, which necessarily directs it into the irregular sinuses. This keeps up the irritation and perpetuates the disease; but, being removed, the inflammation and hardness subside, and the ulcers heal.

When the fistulous openings are of long standing, the urethra becomes callous, and may be almost entirely closed to some extent; the urine is driven into the cellular membrane of the perineum, and tubes of condensed cellular membrane are formed, which are sometimes not confined to the perineum, but extend forward into the scrotum, or backward to the neck of the bladder or extremity of the rectum. The whole integuments of these parts are inflamed, swelled, and full of irregular indurations. This is truly a distressing condition, and requires to be relieved by an operation frequently attended with much difficulty in the performance, and great suffering.

The patient should be placed and secured as in the operation for lithotomy; and if the stricture be situated between the scrotum and the membranous portion of the urethra, a straight staff should be introduced into the urethra, down to the obstruc-

tion; then a probe is to be introduced into the fistulous opening in the perineum, and made, if possible, to hit against the extremity of the staff. A free incision is to be made in the diseased integuments of the perineum, deep enough to lay open the anterior part of the urethra, so as to expose the end of the staff. The stricture must then be divided. When this is accomplished, if the urethra beyond the stricture cannot be seen, it must be searched for with a probe, and, being discovered, the probe, or a bougie, may be passed on to ascertain whether the canal be quite open to the bladder. A flexible gum catheter should then be introduced from the glans penis down the urethra into the wound, and thence along the posterior part of the urethra into the bladder; or it is generally better, at this time, merely to introduce the catheter from the perineum into the bladder, and to delay for a few days passing it through the penis; because, in the former case it produces much less irritation than when the instrument is introduced along the whole urethra. The catheter should be retained in the urethra until the parts consolidate and heal over it, when it may be withdrawn, and a common bougie used daily. The most difficult part of this operation is to find the urethra behind the stricture; for the parts are all massed together from the previous inflammation.

When the stricture is situated in that portion of the urethra which is covered by the scrotum, the operation must be performed in the following manner:—An incision must be made into the urethra

behind the scrotum, and a silver canula then passed from the wound forwards along the urethra, until it reaches the stricture. Another canula of the same size is then to be passed from the external orifice of the urethra, at the glans penis, down to the stricture: thus the ends of the two canulæ will be opposed to each other, with only the stricture intervening. In this situation they are to be steadily retained, by the operator taking hold of that part of the urethra with the thumb and fore-finger of his left hand, while with his right hand he is to carry a long straight trocar down the upper canula, through the stricture into the lower one. The trocar is now to be withdrawn, and a flexible gum catheter passed in the same direction, till it has entered the lower canula far enough to reach into the wound, when both the canulæ may be removed by drawing them over the catheter. That end of the catheter which is in the wound is then to be inserted into the posterior part of the urethra and carried into the bladder, to be retained there until the wound is healed. The great nicety in performing this operation consists in retaining the canulæ in perfect apposition, so that no difficulty may occur in passing the trocar from one canula to the other.

It sometimes happens, in these diseases of the perineum, that the urine obtaining a free outlet by the fistulous openings, the original stricture becomes more and more contracted, until a considerable portion of the canal is totally obliterated.

It has been recommended, in this case, to freely dissect the parts until the bulb of the urethra is brought into view. The fistulous opening is next to be sought for; and a staff having been introduced into the urethra down to the upper part of the stricture, the track of the diseased urethra and the point of the staff are now to be examined, and if the urethra prove entirely obliterated for some length, it is to be cut out. A bougie of the largest size is next to be introduced from the wound into the bladder, and another from the extremity of the urethra down to the wound; the parts are to be lightly dressed, and after a few days, when suppuration has taken place, and granulations are sprouting up about the bougies, they are to be withdrawn and a catheter passed along the whole length of the urethra. After this the parts will soon heal.

During a mercurial course, instituted for the cure of venereal ulcers, the sore will sometimes run down from the corona glandis, under the prepuce, and extending into the substance of the penis, not only lay open the urethra, but destroy it altogether.

Mr. Charles Bell adopted, successfully, the following expedient for the relief of a gentleman who consulted him under these distressing circumstances: he had lost about an inch and a half of the canal of the urethra, had at the same time two strictures, and the urine flowed from the side of the penis. Mr. Bell describes the operation which

he performed thus. " I engaged myself, in the first place, in destroying the strictures, so that the canal might bear a silver canula lying in it. I then dilated the part of the canal towards the extremity of the penis, to see whether the urine would by this means leave the opening in the side and take its proper channel; but indeed this I could not expect, as the canal was actually deficient about an inch and a half. I was reduced to the necessity of performing the following operation.

" I had a silver tube made, six inches in length, and adapted to it a rod of soft metal which projected through it with a probe point; I had also a very sharp stilette fitted to it; I had likewise a directory of somewhat peculiar figure, to pass into the opening of the urethra in the lower part of the penis.

" In the operation I introduced my canula and its probe-pointed stilette down to near the place of the opening in the urethra. I then introduced the directory into the opening from which the urine was wont to flow, and pointed it downwards to the perineum, the groove of the instrument being towards the body of the penis. I now gave this directory to my assistant, and withdrawing the probe which was in the canula, I introduced my sharp stilette and pushed the point through the canula; now taking this stilette and canula firmly in my hand, I directed the sharp point obliquely from the proper course of the canal into the body of the penis, and then carried my instrument behind the

track of the urethra, until I got below the place where the urethra was deficient, then taking the directory in my left hand I made the sharp point of the stilette grate into the groove of the directory, and of course into the proper track of the urethra; then holding the canula and directory very firmly, the sharp instrument was withdrawn from the canula, when the probe was again introduced, and being pushed along the groove of the directory the canula was fairly lodged in the lower part of the urethra.

" Through this canula the urine passed freely, not a drop escaping by the former breach in the urethra, and during the operation not a drop of blood passed. My assistant expected some basins full. I considered three weeks necessary to consolidate the new passage into a firm canal. The only difficulty was in retaining the tube in its place, and keeping the extremity, which was in the urethra, from inflaming the canal. This, I found, could best be accomplished by introducing one of Mr. White's flexible metallic bougies, which passed beyond the sharp edge of the tube, kept the urethra from pressing upon it, and prevented the penis from bending at that part. A T bandage being brought round the perineum and split, received the end of the bougie and pressed in the silver tube, so that it could not escape by accident or by the impulse of the urine.

" By wearing this tube for some time, and afterwards by the use of common bougies introduced into the new passage, I made a complete canal.

But one circumstance has failed in accomplishing a perfect cure. The gentleman can turn to the wall like his neighbours *without the danger of spoiling his silk stockings;* the semen too, I believe, appears at the extremity of the urethra, but still there remains a lateral passage."

PART III.

DISEASES OF THE SCROTUM.

The scrotum being a continuation of the external integuments of the body is liable to be affected with the various diseases to which this texture is subject in other parts of the body. It may, however, be borne in mind, that in the skin of the scrotum there is a large quantity of sebaceous follicles; and that the cellular tissue is abundant and remarkably lax, admitting of great distension.

CHAPTER I.

Sect. I.—*Inflammation—Suppuration—Gangrene.*

From the last observation on the structure of the scrotum, it may readily be conceived that inflammation affecting this part quickly becomes diffused throughout the cellular membrane—that if matter form, it is seldom limited, as in common phlegmon—and that the laxity of the cellular substance, together with its depending position, admit of the infiltration of serum to such an extent that gangrene from excessive engorgement is not an unusual result.

When it is evident that matter has formed, an opening should be immediately made at the most depending part; for if this be not done, the matter will burrow about and effect great destruction. If the cellular tissue be much engorged with venous blood and serum during the progress of inflammation, gangrene may often be averted by freely scarifying the parts.

Sect. II.—*Itching of the Scrotum.*

The skin of the scrotum is not unfrequently affected with a most troublesome itching. Sometimes this is occasioned by ascarides in the rectum; sometimes by morpiones, or by friction from violent exercise in hot weather; and occasionally from a morbid state of the skin, or superficial glands of the part. In the latter case the scrotum assumes

a brown colour, and becomes thickened, scaly, and wrinkled; the itching extends to the skin covering the penis, more especially along the course of the urethra, and the patient has little respite day or night.

When the itching arises from ascarides in the rectum, the remedies suitable for the removal of these should be employed. When it is caused by morpiones, these may be destroyed by strong mercurial ointment rubbed on the part; by washing it with a solution of the oxymuriate of mercury, or by bathing the part freely with a decoction of staves-acre seed. Equal parts of calomel and starch, used as a powder, form an excellent application. If the itching has arisen simply from the excoriation consequent upon friction, a solution of the acetate of lead, or sulphate of zinc, are the most effectual remedies.

When the disease is dependent on some morbid condition of skin, it is very difficult of cure; it commonly occurs in old men, and renders life truly miserable. Sulphur applied to the part, and sulphureous waters taken internally, are sometimes useful; but I must confess that I have often witnessed their unsuccessful employment. In some cases, I have used with much benefit a lotion composed of the emulsion of bitter almonds with oxymuriate of mercury, at the same time giving Plummer's pill at night, with a powder containing a scruple of soda and a drachm of sulphur, three times a day. As a general rule, greasy applica-

tions aggravate the complaint, but in two cases I have used, with much benefit, an unguent composed of one drachm of powder of opium, with an equal quantity of carbonate of soda, to an ounce of lard.

Sect. III.—*Varicocele.*

By this term is meant a preternatural dilatation of the veins of the scrotum, which form a tumour, with hard knotty inequalities. It is sometimes complicated with affections of the testicle and spermatic cord, but otherwise it is not attended with pain; nor is it commonly productive of inconvenience, except it obtain a considerable bulk, which it rarely does.

Astringent lotions and uniform pressure by means of adhesive plaster and suspensory bandage seem to be all that is required in the way of treatment.

Sect. IV.—*Chimney-sweepers' Cancer.*

This disease has usually been considered as confined to chimney-sweepers, or persons who work in manufactures in which soot enters as an ingredient, and from its being peculiar to this country has been ascribed to the particular kind of soot which arises from the sea-coal, so universally consumed as fuel; but the smelters in Cornwall, who are exposed to the fumes of arsenic, have, according to Dr. Paris, a similar disease.

It very rarely occurs before the period of puberty;

and it generally first appears on the anterior and under part of the scrotum, in the form of a warty excrescence, which soon degenerates into a painful, ragged, foul-looking ulcer, with hard edges. From its general appearance and suspicious situation, it is often considered to be syphilitic; but mercury invariably exasperates the disease. In no great length of time it makes its way completely through the scrotum and attacks the testicle, which it enlarges and renders hard; thence it spreads up the spermatic cord, contaminating the inguinal glands and parts within the abdominal ring, and very soon destroys life.

There are, however, deviations in the progress of the soot wart, one of the most common of which is its assuming the character of horn. A hard excrescence, resembling the spur of a cock, is of very frequent occurrence; sometimes it increases to such a size as to have all the external appearances of common horn, and differs only in brittleness and solidity.

Though this species of cancer scarcely ever occurs except on the scrotum, yet two examples of it are recorded by Sir James Earle, in which it happened in other situations. In one instance it attacked the face, in another the wrist, and I have myself witnessed a case in which a similar kind of disease affected the back of the hand.

The progress of this disease is rapidly destructive, and the only chance of checking or preventing the evil is by an immediate removal of the affected

part. The trial of constitutional or local remedies is here worse than a waste of time, as none possess the slightest controlling or sanative influence over the disease.

If the removal of the morbid part be effected whilst the disease is yet confined to the scrotum, it generally proves successful; but if the operation be delayed until the disease has reached the testicle, it then, for the most part, comes too late. Mr. Pott informs us that he has several times performed the operation under these circumstances; and although the wounds have sometimes healed kindly, and the patients have appeared well, yet in the space of a few months they have returned either with the disease in the other testicle, or in the glands of the groin, or with such a diseased state of the abdominal viscera as soon terminated in a painful death.

Sect. V.—*Anasarcous Hydrocele of the Scrotum.*

The cellular membrane of the scrotum is frequently distended with a serous fluid, giving rise to the disease termed the diffused or anasarcous hydrocele of the scrotum.

This species of hydrocele is characterised by a uniform, soft, inelastic, colourless tumour of the scrotum, which readily receives, and retains for a time, the impression of the finger. As the swelling increases, the rugæ are obliterated, and the skin acquires an unnatural white shining appearance; the tumour becomes more firm, and extends up to the groin; the integuments of the penis are

affected, and the prepuce is often so much swollen and distorted as to produce great distress and obstruction to the discharge of urine.

This disease is most commonly dependent upon a general cachectic state of the system, and is merely symptomatic of a more extensive dropsical effusion. Occasionally, however, it is of a more local nature, being produced by tumours in the groin or abdomen pressing upon the lymphatics and veins of the part, and thus causing an effusion; and in some very rare instances it has appeared suddenly, and without any evident cause.

Those cases in which the cellular tissue of the scrotum and penis has become filled with urine, in consequence of ulceration or rupture of the urethra, as well as when, from a bursting of a hydrocele of the tunica vaginalis, the serum has become effused into the loose structure, have both been placed by systematic writers as varieties of this dropsy.

Most commonly the swelling takes place uniformly over the whole scrotum, and occasionally, but very rarely, the swelling is confined to one side. Mr. Pott mentions having seen a true anasarcous distension of the cells of the dartos confined to one side of the scrotum only.

When the disease is but an accompaniment of a dropsical affection of the whole system, our remedial measures must be directed to the removal of the constitutional malady; and the probability of effecting a cure, as regards the local affection, will of course

depend upon the chances which there are of removing the general disease.

If the effusion be caused by tumours pressing on the adjacent parts, their removal, if practicable, will be the obvious means; but, if they are so situated as to render extirpation impracticable, we must be satisfied with occasionally relieving the distension of parts when it becomes inconvenient or distressing, by punctures or scarifications.

The treatment required when urine is extravasated has already been detailed when speaking of rupture of the urethra.

When it depends upon a rupture of the tunica vaginalis, which accident may be known by the swelling suddenly supervening to a blow, or fall, or a leap (the patient having a previous hydrocele of the tunica vaginalis), it will be merely necessary that a few punctures be made, the fluid as much as possible squeezed out, and cold restringent applications used; but where the secretion continues, it will be advisable to make an incision into the tunica vaginalis in the same manner as for the incysted hydrocele.

Surgical aid is sometimes required for the purpose of relieving the distension of the parts by giving exit to the confined fluid, which may be done by scarifications, or, what is better, by several small punctures with the point of a lancet in the most depending part of the scrotum. Gangrene is very apt to follow wounds made in anasarcous parts; and although it occurs less frequently in

wounds made in the scrotum than in parts seated at a greater distance from the centre of the circulation, yet it does take place sometimes, and is always to be dreaded in a bad habit of body. Mr. B. Bell relates an instance which occurred in the Royal Infirmary of Edinburgh, where the whole scrotum sphacelated and left the testicles bare. During the time the sore remained open, all the water collected in other parts of the body was evacuated, and the man ultimately got well, the testicles being covered with a new thick cellular substance. There is no part of the body in which instances of complete regeneration taking place are so numerous as in the scrotum.

When scarifications or punctures inflame and become painful, cold saturnine applications prove much more effective in subduing the inflammation and procuring ease to the patient, than warm emollient poultices and fomentations. When gangrene takes place tonics are to be used, and opium may be given to remove pain and general irritability; warm turpentine dressings are best as external applications.

Sect. VI.—*Anomalous Affection of the Scrotum.*

The following anomalous affection of the scrotum occurred to Mr. Patrick Maxwell in the island of Antigua:

A gentleman, thirty-five years of age, who had always enjoyed uninterrupted health, and who showed no appearance of dropsical diathesis, nor symptoms of abdominal disease, was suddenly seized

in the night with a violent pain in the region of the kidney, a great degree of fever, vomiting, and purging. His scrotum also, on the same night, swelled much, and was very painful.

The affection of the kidney yielded to the common method of treatment, but the swelling of the scrotum baffled every external and internal remedy. This part was enlarged to the size of a child's head; it was very much corrugated, and quite red; a fluid could be distinctly traced through all its cellular substance; the testicle and spermatic cord, which could at the same time be felt, were not enlarged, or otherwise diseased. By bathing the scrotum in cold water it was very considerably and instantaneously diminished, and in the morning it was nearly the natural size.

It was proposed to make several scarifications to carry off the fluid; but, on the first incision being made, instead of limpid water oozing out gradatim from the cells, as was expected, there was a large and continued stream of a fluid that resembled equal parts of blood and milk, intimately mixed. The quantity of this fluid at that time amounted to upwards of three pints. When discharged, it first coagulated and then separated into two parts. The crassamentum seemed evidently to be blood, but the fluid part so exactly resembled milk, that it was impossible to distinguish it by the appearance; it had no smell, and the taste was a little saltish.

When visited in the evening, the patient was as well as usual, and the appearance of the scrotum was the same. The lint being removed from the

scarification, the discharge again began in a continued stream, as before, and more than a pint of the same kind of fluid was evacuated. Next morning matters continued in every respect the same; on moving the dressings the discharge of more than a pint of the same fluid again took place; and, by the same means, a similar discharge was induced, both before dinner and at bed-time. In this manner, for the space of twelve days successively, from three to four pints were drawn off daily. Finding the source of the discharge inexhaustible, the lint was allowed to remain on for twenty-four hours without being removed, and the incision was thus healed. He never found himself the least weakened by so considerable a discharge, but went about as usual.

Sect. VII.—*Elephantiasis of the Scrotum.*

The scrotum frequently attains an enormous magnitude, when affected with that disease known under the various appellations of Elephantiasis, the Cochin disease, the glandular disease of Barbadoes, and, in the British West India colonies, the rose. Rhazes and other Arabian authors have accurately described this disease, as it exists in the extremities, under the denomination of *dal-fil*, or elephant leg, and hence it was confounded by the Greek translators with the disease known to them as elephantiasis, or elephant-skin, an affection separately treated of by the Arabic writers under the title of *Juzam*.

In the eastern hemisphere, it is endemial in many

parts both of Asia and Africa: it is chiefly prevalent, however, in Egypt, Syria, and Arabia. Along the coast of Malabar, in the kingdom of Cochin, and in many provinces of the island of Ceylon it is very common, and in some parts of Japan it is said to be so frequent that one at least out of every ten adults is affected. The disease has been known from the earliest periods in India.

In the western hemisphere, the disease was long considered as peculiar to Barbadoes, but it has now spread itself extensively throughout the whole of the Caribbean islands, and is met with on the American continent. Cases have occasionally originated in Europe, though seldom. I recollect a well marked instance of this disease, affecting both the legs of a man from one of the Orkney islands, being under treatment in the clinical ward of the Royal Infirmary of Edinburgh, in the summer of the year 1810, at the period when I was clerk to Dr. Home, the present eminent professor of medicine in that university; and I understand that it is prevalent in some parts of Ireland.

We are totally unacquainted with the causes which give rise to this disease. In Barbadoes it was thought to depend on some local peculiarity; but the disease having now extended throughout the other islands in which the same local causes do not exist, at once negatives that supposition, and we must confess our ignorance of the circumstances on which it is dependent. Nor is it easy to account for the great frequency of the disease now in many islands in which it was forty or fifty

years ago entirely unknown, and in which the climate, soil, customs, &c., were the same formerly as at present. Mr. Wadd, in noticing a former statement of the fact by me, of the greater prevalence of the disease now than formerly, thinks that it may be accounted for from the increase of population and wealth. He says, "There is no reason that I can find, to suppose the disease more frequent now than formerly, excepting in proportion to the increased population and wealth of the islands. From the first, diseases of all kinds must be more frequent; from the latter, they are better attended to and discriminated." This opinion, however, is perfectly unfounded; for those who are at all acquainted with the present condition of the British West India colonies well know, that so far from there being an increase, there is a vast diminution, of the population; and those who are interested in the islands feel that wealth has diminished in a still greater degree. Peculiarity of food or clothing, or exposure to the vicissitudes of the weather, cannot be considered to give rise to it; for the children of the gentry, who are not exposed to these causes, are frequently affected.

It is not infectious, though I think that children born of parents labouring under the disease are more liable to suffer from it than such as are descended from a more healthy stock.

The attack of this disease is very sudden, and comes on without any premonitory symptoms. A person apparently in perfect health will be seized with severe rigors, attended with acute pain in the head, back, and loins, nausea, and sometimes vo-

miting. There is also pain in the inguinal glands of one side. Sometimes the right, at other times the left side is affected, but never both together; and the gland which is the seat of the disease in the first attack is generally affected in each succeeding one. The rigors, after continuing an uncertain period, varying from half an hour to two or three hours, are succeeded by pyrexia, in which the skin is intensely hot, more so indeed than in any other fever I have seen. The hot stage usually continues from twenty-four to forty-eight hours, and sometimes longer; during which the patient is often delirious. If the leg be the part affected, as is most generally the case, the pain in the inguinal gland increases; and, if the patient be a white person, there is an erysipelatous blush over the part extending down the thigh; but, if the patient be a negro, there is a slight tumefaction and hardness along the course of the absorbent vessels.

Sometimes the inflammation is of a more phlegmonous character, and then the swelling in the thigh is more circumscribed, and often terminates in an abscess, which will require to be discharged. The leg swells, and is much inflamed; and as the inflammation increases, the fever abates, and soon goes quite off, whilst the tumified gland subsides and regains its natural state. The leg continues swelled and inflamed for several days longer, then gradually diminishes, and the patient seems to have again regained his perfect health.

Sometimes the local symptoms are apparent before the fever sets in; at other times they occur so nearly at the same time that it becomes difficult

to say which precedes. The fever makes frequent returns, but at very uncertain intervals; sometimes only two, three or four times a year; in others, once in a month, or three weeks or oftener. It will sometimes return at the end of two or three weeks, and the next time not until three, four, or six months; but whenever it reappears, the disease affects the same part on which it chanced to fall the first time. On each accession of fever there takes place an effusion of lymph into the cellular membrane; the part affected remains swelled for a longer period after each attack. After several returns, the quantity of lymph effused, being greater than can be absorbed, becomes coagulated and ultimately organised, by which the limb or part becomes permanently enlarged, and puts on very much the appearance of being anasarcous, but the swelling does not pit or retain the impression of the finger so much or so long as in a dropsical case. The skin, as the disease advances, becomes rough and rugged.

Patients will live for many years, carrying about with them an enormous leg or scrotum, and will enjoy excellent health, except during the occasional attacks of fever.

The disease is not confined to the inferior part of the body. Sometimes the arm will be the part affected; occasionally the scalp, the ears, or the back part of the neck. In some rare instances it has been known to attack the lower part of the spine or os coccygis. Sometimes it seizes on the stomach, intestines, or brain, producing the same symptoms as when these organs are affected with acute inflam-

mation. The scrotum is a very frequent, and the penis an occasional seat of this affection. It is singular that Dr. Hillary does not mention these latter parts as being subject to the complaint, though he is very minute in detailing many other parts as being subject to its attacks.

This disease is liable to sudden metastases, like gout or rheumatism, two very singular instances of which I will briefly relate. The first was a middle-aged female, who had both legs permanently enlarged from this disease: the disease suddenly quitted these parts, and fixed upon the lungs, producing dyspnœa, cough, with expectoration, which at length was purulent, and the woman became emaciated, and ultimately died hectic. The skin of the legs, which previously to the disease seizing on the lungs was distended and firm, then hung loose and flabby.

The other case was that of a man, one of whose legs I amputated immediately below the knee. It was nearly as large as an ordinary person's body, with deep clefts at the instep, and ulceration of the foot between the toes, causing a profuse watery discharge, and exciting so much pain as to deprive him of rest both night and day: the other leg was slightly enlarged. The man went on well for nearly three weeks, and the stump was nearly cicatrized, when the disease, suddenly leaving the remaining leg, fixed upon the stomach, producing symptoms precisely similar to those which take place when gout affects this organ; the integuments of the leg, in this instance also, hanging loose and flabby, whilst the stomach was affected. By the aid of

powerful stimulants, the disease left the stomach and returned to the leg, again distending the loose integuments. Two or three days afterwards he had a second attack which proved almost instantaneously fatal.

When the scrotum is the part affected, I apprehend that, after a certain time, the lymphatic vessels become so much enlarged and relaxed, that they continue constantly to pour out their contents, so that the tumour increases independently of the febrile attacks. Where the penis is affected as well as the scrotum, these parts enlarge together in an equal ratio; but if the scrotum only be affected, then the penis, as the scrotum enlarges, becomes drawn in, so as ultimately to disappear and become completely imbedded in the tumour; the prepuce being distended elongates, and opens by a navel-like aperture on some part of the anterior surface, or even at the very end of the tumour. There is no limit to the magnitude which tumours of this kind may acquire. The testicles at first may be plainly felt in their natural situation in the centre of the swelling, but in a more advanced stage they cannot be discovered in consequence of the great thickness of the intervening integuments. For the most part they are healthy; though they may be simultaneously affected with any other disease to which they are subject, without reference to this. Hydrocele of one or both tunicæ vaginales is a very frequent occurrence, and the disease may be complicated with hernia.

There are many remarkable cases of this dis-

ease to be found in various authors. Dionis relates a case, the history of which, together with a drawing, were transmitted to him from Pondicherry in 1710, and this was, for a long period, I believe, the only case on record, but since that time almost innumerable examples of the same affection have been published. The tumour, of which Dionis makes mention, occurred in a negro, and is represented as being uneven, and hard as a stone; it was one foot three inches in length, the same in breadth at the lower part, and its circumference was three feet six inches; the weight, as well as could be judged, was sixty-three pounds. The scrotum of the negro, of whom Cheselden has given a plate in the fourth edition of his anatomy, was of the same dimensions as the above. The tumour, which Walther dissected after the death of the patient, descended to the knees; the skin of the scrotum was three times thicker than natural, and the cellular membrane, which surrounds and lies between the testicles, was distended by a viscous fluid, on which the weight of the tumour, which was nearly forty pounds, principally depended. Morgagni mentions two cases of tumours, which he calls sarcoceles, but which were evidently of this nature; one of them was very similar to the case of Walther, a print of which was sent to him from Syracuse, and its authenticity was confirmed by the public authorities of thát city. The other was seen by Morgagni himself at Padua, in the year 1730, in a man who passed through that town on his return to Este, the place of his

residence; this tumour was the size of two men's heads united together, it was unattended with pain, and had been many years in attaining that magnitude.

The person who had the tumour of which Méhée de la Touche has given a description was seventy years of age; it was one foot six inches in length, and three feet one inch in circumference; the penis was imbedded in the tumour. There is a case, however, of which Chopart speaks, more remarkable than any of the foregoing, both with regard to its size and weight. The individual was presented to the academy of surgery in the year 1768; he was a negro from the coast of Guinea, aged fifty years, robust, and five feet five inches in height; he had lately arrived from Martinique, where he had lived for twenty-two years. The scrotum reached to the ancles, and was two feet two inches in circumference at the upper part, and three feet two inches at the lower; its length was two feet and a half, and its weight forty pounds. The man was placed in the Bicêtre amongst the invalid pensioners, and died soon after of a fever. Chopart was of opinion that the extirpation or amputation of this monstrous sarcocele would only have tended to hasten the negro's death, and informs us that an operation of this kind was performed unsuccessfully by M. Raymondon, on a man forty-two years of age, who had a similar kind of tumour of the scrotum, but much less, being twenty-three inches in length, and thirty-two in circumference in the largest part; it had attained this

size in thirteen years, and caused neither pain nor inconvenience except from its weight. M. Raymondon, imagining that the tumour contained an effused fluid, made a deep puncture with a trocar, but without letting out any fluid. A second puncture was made with the same result; the next day, with the advice and in the presence of several surgeons, he amputated this tumour near its summit, preserving the penis and right testicle which was sound, but the left being diseased was removed. The patient died six hours after the operation. The tumour weighed twenty-nine pounds.

Imbert de Lonnes removed a tumour of this kind, weighing thirty pounds, from the celebrated Charles de la Croix, formerly minister for foreign affairs in France; it had existed fourteen years, and the operation, which lasted two hours and a half, was successful, but is not otherwise described.

Baron Larrey describes this disease under the name of Sarcocele, and says that all the persons he saw with it were, at the same time, more or less affected with elephantiasis. He relates the case of an agricultural labourer, who came from Upper Egypt, whose scrotum was estimated to weigh fifty pounds; and states, that in different countries in Egypt he saw ten or twelve others nearly as large. An old man of sixty, an inhabitant of Cairo, sent for the Baron, to consult him respecting an enormous sarcocele, reaching to the lower part of the leg, which he had had for twenty years, and which from its size compelled him to keep in bed. His anxiety to be relieved from so frightful an infirmity

had induced him to take the advice of the medical men of the country, who had tried without effect various measures, as caustics, incisions, powerful discutients. He next consulted an English physician who was travelling in Egypt, and in the hope of obtaining a perfect cure he consented to allow him to apply the actual cautery; but the repeated application of this agent produced no effect, and the tumour continued in the same state. Some years afterwards he applied to a Spanish physician, who was also on his travels; he passed a sharp instrument deep in the tumour, under the supposition of its being a hydro-sarcocele, but nothing was discharged but a small quantity of blood. The sarcocele, far from yielding to these measures, increased.

The propriety of removing the diseased parts having been determined upon at a consultation, the following day was appointed for performing the operation; but the Baron received a sudden order to follow the army, which had commenced its march towards Alexandria, and was thus prevented from carrying his design into execution. He, however, did remove from a cook, in a convent of Capuchins at Grand Cairo, a sarcocele of an oblong form, weighing about three pounds.

The following case is related by Dr. Hendy of Barbadoes:—A black man, ætat. 50, formerly healthy, about four years ago was first seized with the glandular disease, attended with a very considerable inflammation and enlargement of the scrotum.

From his own account, as well as from the symptoms, the local affection seemed to have been entirely confined to the scrotum and cellular substance, for he never had any symptoms that argued a diseased state of the testicles. On each attack, the lymphatic glands, both in the thigh and groin, were enlarged and painful for several hours before the commencement of fever, which was ushered in with the usual symptoms of coldness, shivering, &c. In about thirty hours the fever went off with profuse sweating, but the inflammation of the scrotum, which came on with the hot fit, continued for several days, and always left behind it a proportional enlargement. For the first two years the attacks were frequent, and the increase of the scrotum consequently was very rapid; afterwards they were less frequent, but the enlargement from each was more considerable; and, from its enormous weight, he was sensible of a gradual increase even during the intervals. The surface of the immense mass was very rough and uneven, and felt to the touch as if it contained a half coagulated fluid. No part of the penis could be discovered, and the urine was voided at an opening towards the inferior and anterior part of the tumour. From an accurate admeasurement its dimensions were found to be, from the pubes to the opening above mentioned twenty inches; its whole length twenty-four inches, and its circumference six feet. The left leg was also enlarged by the disease, but in no uncommon degree. A mortification of the part terminated the miserable existence of this poor

creature; and Dr. Hendy states that five other cases had come within his knowledge, where the scrotum being much enlarged, had sloughed, leaving the testicles entirely denuded.

In the case of Paunchoo, related by Mr. Corse, in the second volume of the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, it would appear that the tumour had formed without being preceded by febrile attacks. He states, that the patient first perceived a slight pain at the raphé, in the lower part of the scrotum, which gradually increased, and, in four days a swelling came on, which was confined to the skin of the scrotum. The pain abated, but the swelling continued to increase, and in the course of five years the penis and scrotum were blended in one mass. The length of the tumour was twenty-five inches; the circumference, at the middle thirty-eight inches, at the root fourteen, and at the protuberance near the end twenty inches.

Never having seen nor heard of any case similar to this, Mr. Corse was at a loss to know what name was applicable to the disorder, and, doubtful of the propriety of attempting any operation for his relief, he carried him to Calcutta in January 1791, and got him admitted into the general hospital. It being agreed, on a consultation, that nothing could be done for him, he soon returned to his place of residence, and Mr. Corse tried various medicines, but without effect.

In the Philosophical Transactions mention is

made of a case on the coast of Africa, in which the scrotum was so large as to prevent the individual leaving his bed.

Mr. Wadd relates a case of this disease (of which he gives a drawing) affecting the integuments of the penis. The man was a native of Africa, twenty-five years of age, and being useless to his master, was sent from the West Indies to England for the purpose of being disencumbered of his burthen. Amputation of the diseased prepuce was proposed, but the operation was delayed from the novelty and curiosity of the case, and the vessel leaving the port of London sooner than was expected, the patient returned with his disease. The length of the penis was fourteen inches, and the circumference twelve inches and a half.

Soon after my return to the island of St. Christopher, having finished my medical education, amongst many other estates I was appointed to the medical care of one belonging to Mr. Bourryau, and there I found a negro named Montserrat, who, though young and otherwise healthy, was rendered useless to his owner and burthensome to himself, from an enormous enlargement of the scrotum. The disease prevented him from walking further than a few yards, and this was accomplished with great difficulty; he was thus almost entirely confined to his hut. The tumour was somewhat of an oval form; its neck extended from the symphysis pubis to the anus, and the body of the tumour pro-

jecting a considerable distance both before and behind, descended to within an inch of the ground, dragging down the abdominal integuments: it measured in length twenty-nine inches, and in circumference forty-three; the spermatic cords could be distinctly felt, somewhat enlarged, but without hardness or inequality. The testicles could not be discerned. The penis was deeply imbedded in the tumour, and the urine was discharged at a navel-like orifice, situated (when the patient was standing) nine inches below the symphysis pubis. On stretching this passage laterally, the extremity of the penis could be seen at the distance of three or four inches up this canal, which was formed by an elongation of the prepuce. The surface of the tumour was equal and smooth; the superficial veins were much enlarged; the superior part was thinly interspersed with hair, and the inferior was at times scaly. The integuments felt extremely thickened, but were not of equal firmness all over, and they retained for a time the impression of the finger. The man's appetite and general health were good. He stated that when in bed, and under the influence of lascivious ideas, he was subject to erections of the penis, at which times this member would project at the orifice above mentioned (which from his horizontal position approached, of course, much nearer to the pubes), but said that they were never attended with seminal emissions.

After a careful examination, I informed him that I considered the extirpation of the tumour

practicable, though the operation would necessarily be attended with extreme hazard. He replied that life was quite burthensome to him, that he would rather die than remain longer in his present condition, and that he would readily submit to any operation, how great soever the risk. My friends, Drs. William and Thomas Swanston, having done me the favour to visit the man, and concurring with me as to the practicability of its removal, we decided on the operation; but it being then the hurricane season of the year, a period always unfavourable for the performance of surgical operations, he was recommended to wait until the weather became more settled. Finding there was a possibility of being relieved of his incumbrance, he became so importunate with me to have the operation done immediately, that, with a view to quiet him, a large blister was applied on each side of the scrotum, and kept open for some time by means of the unguentum sabinæ. A very deep seton was afterwards made on each side; but, notwithstanding these discharged freely for nearly six weeks, no diminution of bulk was observable.

On the 5th December, 1813, I performed the operation, assisted by my friends, Drs. Swanston and Dr. James T. Caines, in the following manner:—the patient being placed upon a table on his back, with his breech towards the edge, and being properly secured and supported, an incision was made, commencing at the symphysis pubis and extending in a line towards the opening of the prepuce; the dorsum of the penis was thus ex-

posed, and its point being held between the finger and thumb of an assistant, the prepuce was cut across and the penis dissected out. A flexible catheter was then introduced into the bladder; all our previous attempts to accomplish this object having failed, in consequence of the retrocession of the penis; the spermatic cords, which were at a great depth, were next cut down upon, a temporary ligature passed around each by means of an aneurism needle, and they were then divided. The incision being carried backwards on each side to the verge of the anus, the operation was finished by detaching the tumour from its connexions with the perineal fascia and adjacent parts. The temporary ligatures placed on the cords were then removed, and the arteries secured separately. The integuments were brought together and retained by a few sutures and slips of adhesive plaster, and were sufficient to cover the perineum and to surround the root of the penis, so that this member was the only part which remained uncovered by integuments. The hæmorrhage during the operation was less than we could have expected, considering the magnitude of the tumour.

The man recovered without experiencing an unpleasant symptom. The wounds in the groins and in the perineum were united at the end of three weeks, but the penis was not completely cicatrized before the beginning of April.

On examination of the tumour after its removal, the testicles were found to occupy their natural position. The left was about the size of a hen's egg; the tunica vaginalis of the right con-

tained three pints of fluid, and the testicle was considerably diminished. The layers of membrane investing the spermatic cords were filled with fluid and gelatinous matter. The substance of the scrotum at the upper part was about two inches, but nearer the base it increased to four and a half inches in thickness, and much fluid oozed from its substance; its cavity was filled with a gelatinous matter and fluid, which formed a jelly on cooling. The tumour weighed seventy pounds avoirdupois.

I transmitted the history of this case to my much-respected friend and preceptor, Mr. Thomas Blizard, by whom it was read to the Medico-Chirurgical Society on the 20th December, 1814; and it is published in the sixth volume of their Transactions.

A few months after the foregoing operation, my friend Dr. Caines performed one of a similar kind on an elderly negro, named Castello, at which I was present. In this case, there was a hernia on the right side, the sac of which adhered almost universally to the adjoining parts, and to separate this required a tedious dissection. This being accomplished, and the hernia with its sac returned into the abdominal cavity, the operation was conducted as in the former case. The tumour weighed fifty pounds. On the 10th July, 1816, I assisted the same gentleman in a similar operation, and again in 1820. In the former case the scrotum was nearly as large as Castello's, and there was a hydrocele on each side. All the patients recovered.

On the 26th June, 1816, I operated on three men with elephantiasis of the scrotum. On the 9th August, 1817, I removed the scrotum of a negro; the right testicle was enlarged to the size of a man's fist and indurated, and, on dividing it, I found a portion of the centre ossified. On the 21st June, 1819, I performed a similar operation. All the patients recovered.

But the most remarkable tumour of this description, which I have either seen or heard of, was attached to a man belonging to the estate of the Rev. Mr. Verchild; and from this the late Mr. Wilkes endeavoured to separate the unfortunate possessor on the 6th February, 1815. I was accidentally prevented from being present at this operation, but the following particulars were communicated to me by Mr. Wilkes. The length of the tumour was two feet five inches; its circumference five feet ten inches; and its weight one hundred and sixty-five pounds avoirdupois. The operation occupied nearly eight hours, and the man died apparently from exhaustion towards its conclusion; a copious venous hæmorrhage followed each stroke of the knife; the lymphatic vessels were very much enlarged and were apparent, traversing the tumour. My friend Mr. Jordan, of Weymouth-street, at that time stationed in St. Christopher, as surgeon to the forces, was present, as were also Messrs. Richards and Waterson of the 15th regiment, and Dr. Clifton, a practitioner of the island. The operation was likewise viewed by several gentlemen not of the profession, and the

tumour was seen by the Rev. Mr. Verchild and Mr. Goldfrap.

I once assisted at an operation of this kind which terminated unfavourably. The tumour in this case measured in length twenty inches, and in circumference forty-four. The patient was a young man, and, although anxious for the removal of the tumour, yet he was under a state of great alarm, as was evident both from his countenance and manner. Notwithstanding the operation was performed with great dexterity and celerity, not having occupied half an hour, and the hæmorrhage was very trifling, yet the poor fellow most unexpectedly died on the table.

Whilst these swellings are yet of moderate size the operation is comparatively easy; but when they have attained a magnitude approaching to that of my first case, then it becomes, probably, the most laborious piece of dissection that occurs in the practice of surgery.

The following history of an operation performed by Mr. Liston, of Edinburgh, for the removal of a tumour of the scrotum of this kind, is condensed from the nineteenth volume of the Edinburgh Medical and Surgical Journal.

Mr. Liston's Case.—In the end of last year (1822), James Jeffrey, æt. twenty-two, applied to me on account of an immense tumour, involving the external organs of generation. It commenced when he was only ten years of age, and had gone on increasing gradually. It measured forty-two

inches in circumference, and forty from the verge of the anus to the pubes. The greater bulk of the tumour lay behind, and extended lower than the patient's knees; but notwithstanding its prodigious size and weight he walked tolerably well, and without the assistance of artificial support to the mass. The skin over the swelling was exceedingly coarse and necessarily much stretched; from this cause the hairs of the pubes, &c. were thinly scattered. The urine escaped through the lower part, from the fissures of a large warty mass. The patient had been anxious for relief; and for that purpose, and at various times, more especially when the swelling was very small, had applied to many practitioners; but no one proposed any means of relief or cure, and for many years the poor man, unable to follow any occupation, had lived a burthen to himself and others.

On examining the tumour attentively, I formed the resolution of removing it, and communicated this to the patient. He did not apply to me again till near the end of February, when he had taken a firm determination to undergo the operation. On the 26th of February it was undertaken. The patient was placed upon a table, and the incisions made from behind. I had intended to preserve as much of the genital organs as I might find possible, on examining their attachments and connexions with the diseased mass. But immediately on the bistoury being carried round the base of the tumour, the hæmorrhage was so profuse that any attempt of the kind had to be abandoned,

for the more essential and immediate object of saving the patient's life. Any effort, then, to save these organs (of which he had never known the use—of which he never could have had any use—and which, after all, would have cut but an awkward appearance in the perinæum, without any covering), would undoubtedly have been fatal.

The tumour was therefore detached as rapidly as possible—in not very many seconds; and the mouths of the large and numerous vessels running into it, covered, as they were divided, by our fingers. The flow of blood was compared by those present to the discharge of water from a shower bath, so instantaneous and abundant was it. Before half the vessels could be tied, the patient sunk off the table, without pulse, and with relaxed muscles, voluntary and involuntary. He was turned upon his back on the floor, the remaining vessels tied, whilst a cordial (good strong whisky) was poured into his stomach. He was soon placed in bed, warmth applied, and the exhibition of spirits, &c. continued; and before much sign of recovery could be observed he had taken a pint of it.

The healing of the wound and the re-establishment of his health was very speedy. In three weeks he was able to walk out, and soon after, the complete cicatrization of the wound took place. He is now quite well.

The mass removed weighed forty-four pounds and a half avoirdupois, after the blood and a quantity of serous fluid had escaped. The substance of

the tumour was very dense, approaching very much in resemblance to the mammary gland, and seemed to pervade the whole texture of the scrotum, integuments of the penis, and prepuce. The penis and testicles were closely enveloped in it. The frœnum preputii was much enlarged, and by that the point of the penis was attached firmly to the warty excrescence at the lower part of the tumour.

The following case of enormous scrotal tumour was successfully extirpated by Dr. Wells, of Maracaybo, Colombia*.—Camilo Ballestero, a light-coloured married negro, thirty years of age, labourer on a plantation of San Pedro, had been affected with yaws about three years previously to this report. At the time the cutaneous ulcers began to heal, he perceived a thickening and hardness in the skin covering the lower part of the scrotum. His general health remained unimpaired. His virile powers gradually diminished as the scrotal tumour increased. When the patient applied to Dr. Wells, the tumour measured twenty inches from its base to the symphysis pubis, and thirty-six inches in circumference. Its surface presented the same knotty, scaly, rough appearance, as is seen in the legs of those affected by elephantiasis. The veins of the scrotum were varicose. The prepuce was so involved and dragged down by the weight of the tumour, that the orifice from which the urine flowed was nearly in the middle of it, and the penis was entirely concealed. The spermatic cords could be

* American Journal of Medical Sciences. May, 1828.

distinctly felt at the upper part of the tumour, of the natural size and feel. The inguinal glands were not enlarged. The stream of urine was perfectly free. From the general aspect of the tumour, Dr. Wells concluded that the disease was elephantiasis of the scrotum, accompanied probably with hydrocele; he therefore proposed its removal, which was consented to by the patient; and on the 19th of April he performed the operation.

The parts having been shaved, the patient was placed upon a table, properly secured, and the tumour supported on a folded sheet. Dr. Wells commenced the operation by an incision about three inches long, on the anterior inferior part of the tumour, where there appeared to be a fluctuation, with the intention of evacuating whatever fluid might have been contained, and then introducing his finger, or a director, and cutting upon it; but after continuing this incision to the depth of six or eight inches through the diseased cellular membrane, he found no collection of fluid whatever, but a limpid fluid oozed from all points of the divided parts, and coagulated shortly afterwards. He therefore carried the knife upwards to the pubes, and then cautiously dissected through a great thickness of diseased substance down to the tunica vaginalis, which with its enclosed testicle was perfectly sound, and nearly in its natural situation, the spermatic cord being but little lengthened by the weight of the tumour, although the tunic adhered with great firmness to the surrounding diseased cellular substance. After freeing these parts care-

fully and entirely from their diseased connexions, Dr. Wells proceeded to dissect out the penis, cutting off the elongated prepuce; then extricated the other testicle, which was in the same natural condition as its fellow, and the penis. He next formed four flaps from the healthy part of the integuments sufficient to form a new scrotum and covering for the penis, and, finally, with large and rapid incisions removed the whole of the diseased mass.

The morbid parts appeared to possess little sensibility, but on cutting close to the testicles and penis, the patient complained that the operator hurt him in those parts. The arteries were few and small, and it was only necessary to apply a ligature to one; the veins were numerous and enormously large, and the hæmorrhage from them was considerable. One of these veins was as large as the vena cava, and on cutting down to it presented an appearance so nearly resembling a convolution of intestine as to startle the operator for a moment, although from the state of the parts at the upper portion of the tumour, they felt satisfied that nothing of the kind could exist. The penis and testicles were enclosed and secured in the flaps of the integuments by twenty-five stitches. The patient bore the operation very well, but was a good deal exhausted by loss of blood.

The tumour weighed upwards of fifteen pounds. It contained no fluid, and consisted principally of a kind of semi-cartilaginous, gelatinous substance, apparently unorganised coagulated lymph, with

which the cells of the cellular tissue were filled and distended, giving to the mass a white glossy appearance, and a firm yet trembling consistence. The skin in some parts could be separated from this mass without much difficulty, and appeared of firmer texture, thicker, less elastic, and less vascular than natural; in other parts it was firmly united to the subjacent substance, and was of a cartilaginous consistence.

It is sufficient to notice, that the patient did remarkably well after the operation. On the 28th, the principal part of the scrotum had adhered. On the 17th of July, the patient returned to the country: the penis erected, and he was capable of coition.

Baron Larrey observes, that no author with whom he is acquainted has spoken of a similar disease affecting the female parts of generation, and he accounts for it by supposing that the periodical evacuations and other resources which nature has conferred on women prevent the development of these tumours. Nevertheless he adds, that, as if by a singular frolic of nature, a female of Grand Cairo, named Ammeh Fatoumy, furnished a well-characterised example of sarcocele of the labia pudendi.

The Baron proposed extirpating the diseased parts, but was prevented, for the reason already mentioned, from carrying his design into execution.

I have seen one example of elephantiasis situated in the labia pudendi of a young negress. The parts were very much enlarged, and were am-

putated by my friend Dr. H. M. Clifton, of St. Kitt's, and weighed one pound. The operation was not attended with any hæmorrhage, it was not necessary to secure a single vessel, and the wounds healed kindly.

A third case, operated on by Mr. Liston, is described by him as follows:—A woman, about thirty years of age, of the name of Smith, applied to me on account of a large tumour attached to the labium. It had been growing four or five years, and, from its size, had at length rendered her almost incapable of following her employment. The removal was attended with considerable difficulty, from the circumstance of its neck extending along the vagina a considerable way into the pelvis. On this account, the nature of the tumour appeared very doubtful during the operation. The attachments of the tumour to the sphincter vaginæ were so strong as to be separated with difficulty. After this was accomplished, the contraction of the orifice was very remarkable. The case terminated very favourably. The woman enjoys perfect health. The weight of this tumour was above ten pounds.

PART IV.

DISEASES OF THE TESTICLES, &c.

CHAPTER I.

DISEASES OF THE TUNICS.

Sect. I.—*Chronic Hydrocele of the Tunica Vaginalis.*

In a state of health there is a continual exhalation of fluid from the inner surface of the vaginal coat of the testicle, which serves to keep the surface of the gland moist, and to prevent an accretion of the sides of the membrane. If by any cause the equilibrium be destroyed between the exhalent and absorbent power, an accumulation of fluid takes place within the tunica vaginalis, producing what is termed *hydrocele.*

The effusion, under peculiar circumstances, may take place suddenly, so as to produce a painful distension of the tunica vaginalis in a few hours, or it may appear in a much more gradual manner. The first species may be distinguished by the appellation of the *acute*, and the latter by that of the *chronic* hydrocele of the tunica vaginalis.

Chronic hydrocele of the tunica vaginalis testis is a disease of very frequent occurrence in this

country; but it is more particularly prevalent in warmer climates. No period of life is exempt; we often meet with it in infants; and in them the disease either spontaneously disappears or is readily removed by some gently stimulating application to excite the action of the absorbents, as a solution of the muriate of ammonia. The disease is characterized by a smooth, colourless, roundish, or pyriform swelling of the scrotum, which commences at the lower part, and gradually extends upwards. It is productive of no pain, and cannot be diminished by pressure. At first it is soft, fluctuating, and elastic, but, as the disease advances and attains a larger size, it becomes more oblong and proportionally more tense and hard; the fluctuation is less distinctly perceived; the rugæ of the scrotum, which were at first but little changed, now become obliterated, and the testicle is so much concealed that it can only be discovered at the posterior and inferior part of the tumour by a hard feel at that part, and pain being excited when pressure is made. In the early periods of the disease the spermatic cord can be felt betwixt the top of the tumour and the abdominal ring; but, in a more advanced state, it is not easily distinguished.

From its first appearance the swelling continues progressively to increase, occasionally in a rapid manner, but more commonly by slow degrees. In some cases it acquires a painful degree of distension in a few months, whilst in others it continues many years without producing much inconvenience. The

fluid is generally of a straw colour or greenish, and resembles in its general properties the serum of the blood; occasionally it is of a brown hue, and sometimes it is bloody. If the fluid be clear, the tunica vaginalis not much thickened, and the tumour be placed between the eye and a lighted taper, it will present a semi-transparent appearance.

When the hydrocele has attained a very large size, the weight of it drags the skin of the contiguous parts so much downwards as to make the penis shrink considerably, and sometimes altogether to disappear.

The disease is usually confined to one side, but in many instances we meet with a double hydrocele, where water is contained in the cavities of both tunicæ vaginales; and in this case the swelling, instead of being confined to one side of the scrotum, extends equally over the whole of it.

In general the fluid is contained in one cyst only, but, in some rare instances, the tunica vaginalis is divided into two or more cells. An instance of this kind occurred to me several years ago. I had drawn off the water of a hydrocele for a gentleman; it had again accumulated, and I was about to perform the operation by injection, but to my surprise, on withdrawing the trocar, the fluid was only discharged from the upper portion of the tumour, leaving the lower part still distended. By the aid of a candle I discovered that a membranous septum extended transversely, and divided the tunica vaginalis into two cells. The instrument being now introduced into the inferior cyst,

the fluid readily escaped; the part was injected; and the operation succeeded. The fact in this case was, that on the first occasion of drawing off the water, the trocar had pierced the lower cyst, and, as the two communicated, the upper one was also emptied; but subsequently, the instrument entering the upper cyst, the fluid in the lower could not escape.

For the most part the testicle retains its natural size and structure; occasionally both it and the spermatic cord are much enlarged and altered, and at other times the testicle is much wasted.

The causes which give rise to the effusion of fluid within the tunica vaginalis are but imperfectly understood; for the most part it originates without any evident cause; sometimes it succeeds to blows or other injuries of the testicle; or it arises from exposure to cold; or it may supervene to some constitutional ailment. It is also frequently dependent on strictures of the urethra, or a morbid and highly irritable state of a portion of the membrane which lines that canal. These latter causes have been much overlooked or neglected in practice; but a just knowledge of them is of great importance in the treatment of this complaint.

There are many diseases with which hydrocele may be confounded, and from which it is essential that it should be carefully distinguished; the most important of these is, perhaps, hernia. If the vessels of the cord can be distinctly felt betwixt the top of the tumour and the abdominal ring, we may

be satisfied that the disease is not complicated with hernia. When the apex of the hydrocele extends into the canal, and the spermatic vessels cannot be felt, the diagnosis becomes less obvious; other circumstances must then be taken into consideration to enable us to form a correct opinion of the case; and by attention to the following particulars this may in general be done.

In hernia the swelling commences from above, in the groin, and descends into the scrotum; and the testicle can be perceived at the inferior part. Hydrocele, on the contrary, begins at the bottom, and gradually ascends. Pressure in hernia causes a diminution of the tumour; but it produces no change in hydrocele. If, therefore, a patient be made to recline, and by grasping we endeavour to reduce the tumour, and find that the position and pressure effect no change; and if again the patient, being erect, is made to cough, and no impulse be communicated to the tumour, we may conclude it is not hernia.

From the encysted hydrocele of the spermatic cord, it may be distinguished by the testicle in the latter being plainly felt at the under part of the tumour, whereas, in the former, the testis is seldom distinctly perceived, except at the back part of the tumour. In the former case also the tumour first appears above the testicle, and by degrees falls downwards, while the reverse happens in the hydrocele of the tunica vaginalis. In a few instances these two varieties of hydrocele have been known to coexist in the same patient, in which case the fluid,

though collected in two distinct cysts, has the appearance of an uniform tumour, and a fluctuation can be felt from one end of it to the other. This combination is not easily distinguished. The tumour will generally be somewhat contracted at that part where the two collections are separated from each other; and where this appearance takes place we may suspect the nature of the complaint.

From hæmatocele the vaginal dropsy of the scrotum may be distinguished by the history of the case:—in the former the swelling is generally formed suddenly after a blow or other injury to the part; or, after drawing off the water of a hydrocele, the tunica vaginalis becomes again speedily distended to its former size.

Diseased testicle may be distinguished from hydrocele by its weight and flatness, and the pain it occasions, and often by the discolouration of the skin covering it; by the semi-transparency and lightness of one tumour, and the heaviness of the other.

In scirrhous testicle the swelling is hard; it does not yield in any degree to pressure; the surface of the tumour is commonly rough and unequal; it is in general attended with a good deal of pain; and it is always heavy in proportion to its size.

When an enlarged testicle is combined with an effusion of water into the tunica vaginalis, forming what is termed a *hydro-sarcocele*, it is at all times difficult, and occasionally impossible, to make the distinction. There are, besides, many morbid states of the testicle, in which the diagnosis is very ob-

scure, and some in which it is absolutely impossible to form a correct judgment, practitioners of the greatest talent and experience being often mistaken.

When the hydrocele is old and large, the vaginal tunic is always somewhat thicker than natural; but this is a consideration of no moment. When it acquires the thickness of a quarter, or of half, or of a whole inch, or is converted into cartilage, it becomes necessary to remove the diseased parts. The cause which gives rise to this alteration of structure is repeated inflammation, occasioned by external violence or otherwise. I have seen a case which followed the operation by injection, and Boyer mentions having met with a similar instance.

A middle-aged negro man had one side of his scrotum enlarged to the size of a football. The swelling extended to the groin, was equable, firm, incompressible, without fluctuation, and was heavier than a corresponding quantity of water would have been. A lancet being introduced, its edge grated against a portion which communicated a cartilaginous hardness, and gave vent to only a small quantity of grumous bloody fluid. The scrotum was laid open, and exposed the tunica vaginalis enormously thickened; its cavity contained several coagula of blood; its inner surface was exceedingly rough, and the testicle completely absorbed. The diseased tunica vaginalis, together with the superfluous integuments, were cut away, and the wound healed readily.

The treatment of hydrocele is either palliative or radical.

The palliative treatment consists in evacuating the water by means of a lancet, or small trocar. It is most conveniently accomplished by means of the latter instrument, as the canula facilitates the exit of the water, and prevents it from being diffused into the cellular texture of the scrotum. Simple, however, as this operation is, it is not altogether devoid of danger, especially in elderly persons, as may be seen from the following case, which occurred in the practice of Mr. Green:—An elderly man applied to him with a hydrocele, which he a few days afterwards tapped; on the following day, the man's business led him to walk a few miles into town; the next day the scrotum became inflamed; on the third there was a gangrenous spot, and on the fifth day from the operation he died.

Sir Astley Cooper likewise mentions a case which proved fatal under his care. He performed the operation on a Saturday; the following day the man walked to Pancras church. On the Monday inflammation began to show itself in the scrotum, on the Thursday gangrene had taken place, and on the Saturday week after the operation he died. I have been informed of a third instance, which happened in the West Indies; where a gentleman, after having had the water of a hydrocele drawn off, walked across a small court-yard in a drizzle of rain; tetanus supervened and proved fatal. It is advisable, when the operation is performed on

elderly persons, to enjoin them to keep their beds for a few days afterwards.

In introducing the trocar, it is of the utmost importance to possess an exact knowledge of the situation of the testicle. Its ordinary situation is two-thirds of the way down the tumour at the posterior part; but it sometimes varies in this respect. Occasionally it is found in front, sometimes at the bottom of the swelling; and more rarely the water collects at the sides of the testicle, adhesion having taken place both before and behind. The position of the testicle may be discovered by a careful examination of the swelling, and by squeezing it with some degree of force at every part. When the testicle is pressed, it will be found that the tumour is more firm, and the patient will complain of pain.

As the testicle is adherent to the posterior part of the tunica vaginalis, it is obvious that the most proper place for the introduction of the instrument will in general be the anterior and lower part of the tumour. Should the trocar pierce the body of the testicle, inflammation of that gland may be the consequence; but frequently it is not followed by any unpleasant symptoms. Boyer mentions having been twice guilty of this, without any bad effect.

It sometimes occurs that after the fluid has been drawn off no re-accumulation takes place, and the cure is perfect. These cases are, however, extremely rare; and, on the contrary, we most commonly find the swelling soon returns, and in process of time acquires its former magnitude. There is a case mentioned in Van Swieten's Commen-

taries, in which a patient had the operation performed every three months for twenty years in succession. And I am acquainted with a medical gentleman, who, during the last fifteen years, has laboured under hydrocele, which he himself taps three or four times in the year.

The palliative operation should always be once performed previously to that by injection, as it enables us satisfactorily to ascertain the condition of the testicle and its coats; and when the sac has filled again, to about two-thirds of its former dimensions, or contains from eight to ten ounces of fluid, the radical treatment may then be resorted to.

All the operations which have been recommended for the radical cure of hydrocele, have been proposed on the supposition that it was essential to produce adhesion of the sides of the sac, and consequent obliteration of its cavity. This, although the most certain and effectual method, is not absolutely necessary, as is evinced by the cures which sometimes spontaneously take place, or follow external applications to the scrotum, or the removal of strictures, or an irritable state of the urethra.

The muriate of ammonia is well known to possess very powerful discutient properties, and when combined with spirits of wine and vinegar, they are rendered still more active. From having experienced the good effects of this compound in dispersing large collections of fluid within some kinds of encysted tumours, and within large cysts in the neighbourhood of the capsular ligaments of the knee joints, the late Mr. Keate was led to make

trial of it in hydrocele, and published a small tract detailing four cases, which were successively cured by the following application:—Muriate of ammonia, one ounce; vinegar and spirits of wine, of each four ounces: Mix. Cloths well moistened with the liquor are to be folded round the scrotum and renewed three times a day, and the parts to be suspended in a bag truss. The lotion may be applied either when the hydrocele is full, or after the fluid has been evacuated.

This treatment seems best adapted to those cases which are dependent on an inflammatory state of the parts. The solution, however, sometimes produces so much irritation of skin as to render it necessary to be discontinued.

A hydrocele has been dispersed by suspending the scrotum in a bag of salt.

Sometimes it disappears in consequence of some accidental cause, as a blow, the gout, an attack of fever, &c. Cases are related in which hydroceles have been cured, after drawing off the water, by applying a compress wetted with lime water, or by applying the fumes of vinegar night and morning to the part, and the fluid as a lotion.

The means which have been had recourse to for the radical cure of hydrocele by exciting inflammation in the vaginal tunics, and thus producing an obliteration of the cavity of the sac, have been various; such as caustic, seton, incision, excision, and injection; but they have now all yielded to the

latter, as being a milder and equally efficacious remedy.

Setons were the favourite remedies of Mr. Pott, before the operation by injection became common; but they are now very rarely employed. They may, however, be advantageously used in those young persons whose hydroceles do not give way to the absorbent plan; and in children of two or three years of age, it is perhaps better to use the seton, as the operation can be accomplished before the child is aware of it. A needle, armed with a few threads, should be passed through the scrotum and tunica vaginalis. Inflammation generally ensues; the water gradually escapes; and as this takes place, adhesion of the tunica vaginalis comes on.

A method of cure closely resembling that by the seton was first proposed by Franco:—it consists in the introduction of a tent at an opening made in the tunica vaginalis, and thus inducing suppuration of the cavity. It was supposed that the inflammation thus set up by mechanical agents might be more under control than that produced by other means; as, when it had reached a certain extent, the tent might be withdrawn, and the inflammation thus prevented from extending. But experience does not confirm this opinion; on the contrary, it has been found that inflammation once excited will continue, and make the same progress after the cause has been removed. Besides, the prolonged continuance of a foreign body in the

tunica vaginalis subjects the patient to much greater constraint and inconvenience than the operation by injection. Baron Larrey strongly recommends the practice of making a puncture and introducing a piece of elastic gum catheter.

The practice of incision, or laying open the cavity which contains the fluid, is of very ancient date in the treatment of hydrocele. The operation, however, is highly dangerous, and is now entirely abandoned.

The operation of removing the sac by *excision* is alluded to by Celsus; but this plan, it must be evident, if carried to any extent, is highly painful, and violent inflammation, with sloughing, are liable to ensue. Mr. Wood of Manchester has proposed a much milder course. He recommends, after evacuating the water with a broad-shouldered lancet, a portion of the tunica vaginalis to be drawn forward with a small hook, and then to be cut away with a pair of scissors, immediately closing the opening with adhesive plaster. Slight inflammation is thus induced, sufficient to excite an altered action in the exhalent vessels of the part, and reaccumulation is prevented. But it is doubtful whether cohesion of the tunics takes place under this operation, and, therefore, although it may answer in some recent cases, yet where the disease is of long standing it will be requisite to excite a greater and more extensive action.

At the period when this practice was promul-

gated I was in the West Indies, where I had numberless opportunities, from the great frequency of this complaint in that climate, of putting it to the test. I one day tried it on six patients, and although in some of them a very considerable portion of the tunica vaginalis was removed, yet it proved in every case unsuccessful.

Injections are now most generally had recourse to for the radical cure of hydrocele, and are usually successful; however, if there be a suspicion of disease of the testicle, they should not be resorted to, and in old persons the practice is scarcely justifiable.

Wine was formerly much employed, but as it varies in strength, the sulphate of zinc, in the proportion of a drachm to a pint of water, is preferable.

The intention of this operation is to excite such a degree of inflammation in the tunica vaginalis, that its internal surfaces being left in contact by the evacuation of the fluid, they may cohere, and preclude the possibility of all future collections.

In performing the operation, the patient should be placed in a recumbent position, or he may be sitting, and the surgeon, grasping the scrotum with his left hand, must introduce the trocar and canula into the inferior and fore part of the tumour: the point of the trocar ought not to be directed inwards, but, having entered the sac, should be turned upwards, to prevent the testicle being injured. The canula should be pushed further into

the sac, whilst the stilette is at the same time withdrawn. The water having flowed out, we should carefully feel that the extremity of the canula is within the sac, and that it remain there while we examine the testicle; if this be found in a healthy state, we may proceed to inject. But with hydrocele there is often an enlargement of the testicle and thickening of its coats, caused by long distention; or there may be, on the contrary, a softness or diminution of the body of this gland from long-continued pressure. These states do not contraindicate the performance of the operation; but if the testicle be large, hard, irregular, and painfnl, the canula may be withdrawn, as the operation ought not to be undertaken under these circumstances.

If the testicle be in a proper state we proceed. The pipe of the injecting bag being fixed into the canula, the surgeon slowly compresses the bag until the sac is completely filled and rises to its former size, when the stopcock is to be turned. Much of the success of the operation depends upon putting the tunica vaginalis fully upon the stretch. The injection should always remain for five minutes, and in many cases the period may be prolonged to eight or ten.

Severe pain in the spermatic cord and loins, with faintness, denote a degree of nervous irritability in the patient, and is not generally followed by much inflammation. Indeed, the degree of subsequent inflammation is often in the inverse ratio of the pain suffered at the time of the injection; and a person

who does not experience much pain will often have a considerable degree of inflammation the next day.

After the operation, if the patient feel but little pain, he may walk about as usual; but, if there be much pain, he should lie down. After a few hours have elapsed, inflammation will probably come on.

If on the following day the inflammation is less than is considered sufficient to effect the cure of the hydrocele, the part should be handled until the patient feels some uneasiness. He may afterwards take a walk, and increase his allowance of wine; and by these means we shall generally succeed in producing such a degree of inflammation as will be sufficient to effect a cure.

The marks of a due degree of inflammation having taken place are, a general swelling of the testicle, and a slight redness of the scrotum on the second and third day. The tumour feels as if the disease had rapidly returned, and the coats had filled with fluid; as the inflammation rises, a pain shoots into the back and loins. Generally to the fifth day the scrotum is swelled and tender, and after this period the inflammation subsides, the tumour becomes softer and dissipates, and the testicle is again felt.

It sometimes happens, in constitutions which have a great disposition to inflammation, that the injection will act so violently as to produce suppuration. When there is danger of this, which may be ascertained by the great pain and redness

of the scrotum, an incision must be made in the part so as to discharge the contents; and if the opening be not large, the cure will be effected by the adhesive process.

Simple as is the operation of injection, it is not void of danger. I am acquainted with an instance where it was succeeded by peritoneal inflammation which terminated fatally. If sufficient attention be not paid to keep the canula within the tunica vaginalis, the injection will be forced into the cellular texture of the scrotum, and will be productive of inflammation and sloughing, more or less extensive, according to the quantity of the extravasated fluid. Life is frequently endangered by this accident, and death has sometimes been the consequence.

The following case, related by Boyer, portrays the fatal consequences which may result from this circumstance, or from allowing the canula to slip out after the injection has been forced into the tunica vaginalis.

A young man, twenty-four years of age, was operated upon for a very large hydrocele of the left side, which had been forming eight months. After the trocar had been introduced, and the fluid evacuated, the operator confided the care of the canula to an assistant, and himself injected a syringe full of wine into the tunica vaginalis, and, without allowing it to come out, threw in a second and third quantity of the same liquid. At length, however, the pains became so severe that he was

obliged to allow part of the wine to escape. He then discovered that the canula had slipped from the tunica vaginalis, and that the wine was extravasated in the cellular membrane. He endeavoured to get it out, but without success. After having enlarged the wound made by the trocar a little, he dressed it with lint, and covered the scrotum with an emollient cataplasm. The pains were very severe on the day of the operation, and they became more so during that night and the following day. The scrotum was enormously swollen and the abdomen became painful. On the third day the inflammation had extended to the penis. Two bleedings were had recourse to. At five o'clock delirium came on, and at seven the patient died.

On examination of the body, from four to five ounces of bloody matter were found in the tunica vaginalis; the cellular membrane of the scrotum contained a reddish purulent matter, the spermatic cord was much swollen, and the abdominal viscera exhibited marks of acute inflammation.

Whenever a difficulty is experienced in forcing in the injection, it should lead to an examination of the canula; and if it be found to have slipped out of the tunica vaginalis, the further performance of the operation should at that time be desisted from. If, unfortunately, the surgeon, unconscious of the accident, persist in using the injection, and none returns through the canula, a cold solution of the muriate of ammonia in vinegar and water should be applied to the scrotum; and if

this do not succeed in causing the absorption of the fluid, and preventing inflammation, a free incision should be made into the cellular membrane of the scrotum, to afford an exit to the extravasated fluid, and allow the sloughs to be more readily cast off. When the canula slips out after the tunica vaginalis has been filled with injection, and which consequently cannot be returned, it will be better at once to lay open that cavity, and thus give immediate vent to the retained fluid.

I have occasionally been requested by patients who have had a double hydrocele to perform the operation on both sides at the same time, for the purpose of shortening the period of their confinement. I have never acceded to this, from the uncertainty to what height the inflammation may run, but have delayed the second operation until the third or fourth day. By this time we are able to ascertain the extent of the inflammation. Indeed I have never met with a person who could have undergone two operations at the same time, one proving quite as much as they could well support.

Where hydrocele is dependent upon, or caused by stricture, or by an irritable state of the lining membrane of the urethra, our first care must be the removal of the morbid state, and when, by the judicious use of the bougie, the canal is restored to a healthy state, the fluid, if it be not spontaneously absorbed, may be drawn off, under the well-grounded hope of its not again collecting.

Sect. II.—*Acute Hydrocele.*

This complaint consists in a sudden effusion of watery fluid into the tunica vaginalis testis, attended with pain. For the most part it occurs in persons of nervous or irritable habit, generally when they are placed under circumstances of venereal excitement, and in such as have strictures, or whose urethra is in some degree in an unhealthy state. Its commencement is marked by severe pain in one of the testicles, darting with great violence along the spermatic cord, and extending to the back and loins. The scrotum, without becoming inflamed externally, is soon distended to a considerable size; the pulse is quickened and sometimes irregular, but the tongue seldom becomes dry or furred, neither is there any increased heat of skin, as in common inflammatory attacks.

In this species of hydrocele the testicle is not enlarged, but, being in a very irritable state, becomes extremely painful when any pressure is made on the already distended tunica vaginalis: in ordinary cases of orchitis, the bulk of the tumour consists of an inflammatory enlargement of the gland itself.

Acute hydrocele, if the tumour be not too painful to bear such a test, will be characterized by elasticity and fluctuation, and generally by transparency. With inflammation of the testicle the tumour will be firm, have a considerable degree of resistance, and is always impervious to light. In the former

case cold water poured upon the swelling greatly aggravates every symptom, but in the latter it affords relief.

General bleeding from the arm in acute hydrocele is unnecessary, and commonly does mischief. The principle of practice should be to allay general irritability and produce local relaxation. For this purpose, leeches, proportioned in number to the severity of the symptoms, should be applied to the scrotum, and, when they fall off, the patient should be placed in a warm hip bath for some time. A brisk purgative may then be given, and, after its full operation, a dose of laudanum combined with a sudorific. When the pain is particularly distressing the opiate may be given without waiting the effect of a cathartic, and in some instances an enema with laudanum may be exhibited. On getting out of the warm bath the patient should be put to bed, and the scrotum should be enveloped in a large warm bread and water poultice, and kept suspended. Generally in twelve hours, and frequently in less time, all the painful symptoms will be removed, and there will only remain a common transparent hydrocele, which will in a short time be spontaneously absorbed.

As this complaint is for the most part dependent on stricture, or on some unhealthy state of the urethra, it is always necessary, when the excitement has subsided, to direct attention to the treatment of the urethra, as the only means of securing the patient against a recurrence of similar distress-

ing symptoms, whenever he may be again exposed to causes of excitement. An early introduction of the bougie, however, will be injudicious; a reasonable time (perhaps two or three weeks) should be allowed to afford an opportunity for the urethra to regain a more quiescent state, and for the fluid to be absorbed before the bougie be used. In case the hydrocele has not disappeared at the expiration of such period, it may be suspected that the existing mischief in the urethra has become permanently active, and continues to excite effusion, and the bougie should then be resorted to as the probable means of completing the cure of the hydrocele.

In those cases in which the fluid is absorbed within the above period the use of the bougie will be advisable, as a proper precaution, and security against a relapse.

Sect. III.—*Congenital Hydrocele.*

It sometimes happens that a collection of water takes place between the vaginal tunics, and communicates with the cavity of the peritoneum, in consequence of the natural adhesion which shuts up the cavity of the abdomen not having occurred. In this case, the patient being placed in the recumbent position, the water is easily returned into the belly upon elevating the scrotum; and this constitutes an essential feature in the diagnosis. With respect to the treatment, it has been supposed that there is great danger of exciting peritoneal inflammation by the use of stimulating injections. Desault, however, employed a red wine

injection without exciting such mischief. Sir A. Cooper recommends the application of a truss over the ring, to be constantly worn; by which means, he states a cure is readily effected.

Sect. IV.—*Hydrocele of the Herniary Sac.*

In hernia there is commonly an effusion of fluid within the sac; but in that species which has been denominated congenital, where the intestines lie within the tunica vaginalis and in contact with the testicle, the accumulation of water is frequently very considerable, forming what is called a hydrocele of the herniary sac.—Dr. Monro relates a case in which six pints of fluid were collected in the sac of a hernia, and discharged by the puncture of a trocar.

The ring of the external oblique muscle being in these cases open, the water can readily be made to recede into the abdomen; and this is the sign by which the disease is distinguished from common hydrocele of the tunica vaginalis. But where the protruded intestine, or omentum, is adherent at every point to the neck of the sac, it will prevent the return of the fluid into the abdomen.

Sect. V.—*Hæmatocele.*

Hæmatocele is a tumour of the scrotum or spermatic cord, caused by extravasated blood.

The effused fluid in some cases is contained within the tunica vaginalis, and may be the effect of external violence, as a blow or bruise; but, in general, it is occasioned either by the wound or

rupture of one of the vessels of the part: sometimes in drawing off the water of a hydrocele, the point of the trocar or lancet will wound one of the vessels, which will bleed freely; or a spontaneous rupture of one may occur in consequence of the sudden evacuation of the water. In the former case we are immediately informed of the accident by the fluid discharged being mixed with blood; but in the latter the fluid is not discoloured. In both cases, the blood continuing to flow after the operation, in the space of a few hours a tumour is formed nearly equal in size to the original hydrocele.

If the quantity of blood extravasated be small, discutient applications, as camphorated spirits of wine, a solution of alum or sal ammoniac in vinegar, will be sufficient to cause the absorption of the fluid. But if the effusion be considerable, it will be necessary to lay open the cavity of the tunica vaginalis, in order to remove the blood, and to secure the wounded vessel, if it can be discovered, or otherwise to apply dry lint to the inside of the membrane.

There is a species of hæmatocele clearly described by Pott, in which the blood is effused into the cellular membrane investing the spermatic cord, from a rupture of the spermatic vein between the groin and scrotum. It is generally the consequence of violent and sudden exertions of strength, or contusion: the blood being poured into the cellular

membrane of the cord, produces a swelling in the groin or upper part of the scrotum, which is liable to be mistaken for hernia or hydrocele of this part. I have witnessed several cases of this nature where the difficulty of diagnosis has been very great.

It may be advisable, if the patient be young, to take blood from the arm, and endeavour to promote absorption of the extravasated blood, by applying to the tumour a lotion of spirits of wine or a solution of muriate of ammonia, and administering an active purgative, the patient being at the same time confined to his bed. These measures, however, do not often succeed; and it then becomes necessary to lay the tumour open its whole length, while the hemorrhage must be restrained by compression, or by a ligature on the bleeding vessel.

One of the most common kinds of hæmatocele met with in practice is, when blood is effused into the loose cellular membrane of the scrotum, and when there is ecchymosis and discolouration of the integuments, in general the result of severe contusion, but sometimes supervening to the operation of castration or of lithotomy. The use of cold lotions and the free application of leeches will generally suffice to cure the complaint.

Sect. VI.—*Cartilaginous Bodies in the Tunica Vaginalis.*

Small cartilaginous bodies are sometimes found loose in the tunica vaginalis testis, in conjunction

with hydrocele, and bear a striking analogy to those moveable bodies, or loose cartilages, which are formed in the synovial cavities, particularly that of the knee-joint.

These substances differ much in size, but are commonly of a globular form, the surface being smooth and polished. The tunica albuginea exhibits marks of inflammation. It is difficult, however, to explain how masses, unconnected with the rest of the body, except through the medium of a fluid, can be formed. It is probable that they are consequent upon inflammation, and the effusion of coagulable lymph on some part of the tunica vaginalis, to the inner surface of which they have been attached by very small peduncles, and that by the motion of this tunic upon the testicle they probably have been separated, after which they continue loose in the cavity of the tunica vaginalis.

This affection is not of very frequent occurrence. Dr. Monro, in his work on the bursæ mucosæ, mentions having observed, during an operation for hydrocele, that there were several moveable bodies contained in the sac along with the water; and Dr. Baillie had seen only one case of it. Morgagni makes mention of having observed in several cases small pendulous globular tumours, of the colour of the albuginea, adhering to the upper part of the testicle; and, in one case, he says, that one of these bodies seemed by some accident to have been separated from its attachment, and left loose in the cavity, as the neck remained by which it appeared to have adhered. Mr. Wardrop has communicated, in the fourth volume of the Edinburgh Medical and

Surgical Journal, two cases, in which he discovered a cartilaginous body in the tunica vaginalis of persons who were brought into the dissecting-room, but with whose history he was unacquainted.

Professor Richter of Göttingen has given a very full and interesting account of a case of this kind, which was mistaken for a hernia of the urinary bladder, and the moveable bodies for calculi contained within it.

These bodies are attended with no inconvenience, and are, I believe, considered in respect to themselves, never an object of treatment. Their removal, however, can be readily effected by an incision into the tunica vaginalis, should it be deemed necessary.

CHAPTER II.

DISEASES OF THE SPERMATIC CORD.

The diseases which affect the spermatic cord are a varicose state of its veins; a dropsical distension of its investing membrane, forming a hydrocele of this part, which may be either diffused or encysted; it is also sometimes the seat of scirrhus, unconnected with the testicle.

Sect. I.—*Cirsocele*

Is a varicose distension and enlargement of the spermatic veins. It has been remarked, that this disease is more frequent in the left than in the right spermatic cord; and a cause for this has been assigned by the left spermatic vein terminating nearly at a right angle in the left emulgent vein; hence the weight of the whole column of blood presses on the vessels, whilst the right spermatic vein, by terminating directly in the inferior cava, is not subject to the same pressure.

In this disease we find an unequal knotty swelling, which has been aptly compared to a bundle of cords or earth-worms. With the exception of an uneasy sensation of weight in the scrotum, and a little tenderness when pressed, the recent cirsocele is productive of little or no inconvenience; but in an advanced stage, very severe pains gradually come on, sometimes extending upwards to the back and loins, and downward to the thigh.

The varix is most frequently confined to that part of the spermatic process which is below the external abdominal ring, and the vessels usually become larger as they approach the testicle. In general the testicle is unaffected, though occasionally it becomes so much wasted as to be scarcely perceptible. Mr. Pott mentions having once seen this disease on both sides in the same subject, and each testicle disappeared.

Cirsocele is frequently mistaken for inguinal hernia; and there are several points of resemblance between the two diseases. They both dilate upon coughing, increase in an erect, and diminish in a recumbent posture. But there is one method by which they may be certainly discriminated; and that is, by placing the patient in a horizontal posture, and emptying the swelling by pressure on the scrotum; then putting the fingers firmly upon the upper part of the abdominal ring, and desiring him to rise. If it be a hernia, the tumour cannot reappear so long as pressure is continued; but, if a cirsocele, the swelling returns with increased size, on account of the passage of the blood into the abdomen being prevented by the pressure. These two diseases, however, do sometimes exist together, forming a combination extremely perplexing, because the cirsocele renders the patient incapable of wearing a truss.

Cirsocele is distinguished from a scirrhous enlargement of the cord thus:—In the latter, the cord is not only enlarged, but feels unequally hard

and knotty; the parts of which it is composed are undistinguishably blended together; it is immediately painful to the touch, or becomes so shortly after being examined; the patient complains of frequent pains shooting up through his groin into his back; and the spermatic process is generally fixed in the groin from adhesion, so that it is difficult to get the finger round it. In the first, the vessels, though considerably enlarged and dilated, are nevertheless smooth, soft, and compressible; the whole process is loose and free, and will easily permit the fingers to be passed entirely round, to distinguish the parts of which it is composed; it is not painful to the touch, nor does handling produce those darting pains which almost always attend the examinations of a scirrhus.

In ordinary cases, supporting the testicle with a suspensory bandage is all that is necessary to be done; external applications are seldom productive of good. When considerable pain exists, blood may be taken away by leeches; cold saturnine or astringent lotions may be applied to the scrotum and cord; the bowels should be kept freely open; and rest in the horizontal position may be employed, with a view of palliating the symptoms, for a perfect cure can seldom be effected, even when the disease has made but little progress.

There are, however, degrees of this disease which may render an operation advisable: it is where there are distinct varicose knots, and where they

can be separated with the fingers from the main course of the vessels of the cord. The operator, in such a case, feeling the cord and vessels, separates the knot of veins from the spermatic vessels, and, giving the upper portion to an assistant, to be held very tightly, holds the lower part himself. He then makes an incision through the integuments, and exposes the varicose veins, which are to be separated as much as possible; then, where they are attached by vessels above and below, a needle and common ligature is put round, and tied. The portion betwixt these ligatures is dissected away, and the wound brought together with adhesive straps, dressed with lint, and suspended. Mr. C. Bell observes, that, after an operation of this kind, on examining the extirpated part, he has seen a full inch of the spermatic artery in the centre of it; and, instead of the testicle wasting, as he thought would be the case, the patient did well, and expressed himself highly satisfied and relieved.

Instances are mentioned by authors in which the pain occasioned by cirsocele has been so severe and incapable of palliation, as to render the operation of castration necessary for removing the sufferings of the patient.

Sect. II.—*Diffused Hydrocele of the Spermatic Cord.*

An effusion of serum in the cellular membrane, which invests the spermatic vessels, may be either encysted or diffused.

The diffused hydrocele of the spermatic cord

varies in appearance according to its magnitude. In general, when it is of moderate size, the scrotum is free from all appearance of disease, except that, when the skin is not corrugated, it seems rather fuller, and hangs somewhat lower on that side than the other; and, on examination with the hand, feels heavier. The testicle, with its epididymis, may be distinctly felt below this fulness, unaltered; the spermatic process is considerably larger that it ought to be, and feels like a varix or an omental hernia; it has a pyramidal form, being broader at the bottom than at the top; by gentle and continued pressure, it seems gradually to recede or go up, but drops down again immediately upon removing the pressure, and that as readily in a supine as in an erect posture. It is attended with very little pain and uneasiness.

When the hydrocele is more considerable, it forms an oblong tumour, which extends from the testicle to the inguinal ring. It is free from pain, compressible, and without fluctuation, and in general causes a sensation of weight at the loins.

If the extravasation be confined to the spermatic process, the opening in the tendon of the external oblique muscle is not at all dilated; and the process passing through it may be very distinctly felt. But if the cellular membrane which invests the spermatic vessels within the abdomen be affected, the tendinous aperture is enlarged, and the increased size of the cord passing through it communicates a sensation not unlike that of an omental hernia.

Sometimes the disease is entirely local, and con-

fined to the cellular membrane of the cord; at other times it is a concomitant of ascites or general anasarca.

The diagnosis frequently presents considerable difficulty. It is often mistaken for a varix of the spermatic cord, or for an irreducible omental hernia. In certain cases, the resemblance to this last disease is so striking as to render it almost impossible to distinguish the one from the other. By pressure, the swelling can always be made to recede, never entirely, but often in great part into the cavity of the abdomen. It instantly, however, returns to occupy its former situation when the pressure is withdrawn, and with as much facility in a recumbent as in an erect position.

While the tumour is small and local, it excites so little pain or inconvenience, that it seldom becomes an object of medical treatment: but sometimes it attains a great magnitude, reaching half way down to the knee, affects the membrane within the cavity of the abdomen, as well as that without, and becomes not only a deformity, but is so very inconvenient, both from its size and weight, as to induce patients to desire to be relieved from it.

The operation consists in laying open the tumour through its whole length, to give vent to the serous, and sometimes viscid fluid, which is extravasated into the cells of the investing membrane. In making this incision, we should avoid wounding the vessels of the spermatic cord. For the first three or four

days the serum will continue to flow abundantly, and is then succeeded by suppuration and granulation of the wound.

If swelling of the testicle should supervene, or the suppuration be scanty, fomentations and poultices must be employed. When the disease is dependent on a dropsical habit, our treatment must, of course, be directed to the relief or cure of the constitutional malady.

Sect. III.—*Encysted Hydrocele of the Spermatic Cord.*

This species of hydrocele has its seat in the same part as the preceding; but, instead of being diffused throughout the cells of the membrane, is contained in one cavity only. The disease is by no means unfrequent, especially in children. It most commonly occupies the middle part of the process between the testicle and groin, and is generally of a circular or oblong figure. It may, however, be situated either at the superior part of the process, or at the inferior, a little above the epididymis. It is generally tense, and consequently the fluctuation of the fluid is not very perceptible, being perfectly circumscribed, and having no communication either with the cavity of the abdomen above, or that of the tunica vaginalis below. The testicle is distinctly to be felt below the tumour, and is independent of it. The swelling does not pit on pressure; it undergoes no alteration from change of posture; nor is it affected by coughing, sneezing, &c.

The foregoing marks, when the disease is simple and uncombined with any other, are sufficient to distinguish it; but it sometimes happens that it is connected either with a true hernia, or with a hydrocele of the tunica vaginalis; by which the case is rendered complex and less easy to be understood. In this, as in every other case where, from a complication of symptoms and appearances, a combination of diseases may be suspected, there is but one method of arriving at the truth; which is, to consider carefully what disorders the part is naturally liable to; what the distinct symptoms and appearances of each are; and what are the effects of the present complaint. Although there be not always such external marks as may explain to the eye the combination of these diseases with each other; yet the particular seat and symptom of each being known, and the sensations which they produce to the fingers of an intelligent examiner being understood, when such mixed characteristics are found in the same subject, we may reasonably conclude the case to be of a mixed nature, and act accordingly.

When the tumour is so extensive as to reach from the bottom of the scrotum to the abdominal ring, it may, from its general appearance, form, fluctuation, and from the circumstance of being uninfluenced by pressure, be mistaken for a hydrocele of the tunica vaginalis. The following are the marks by which they may be distinguished:—In the commencement of this variety of hydrocele,

the tumour is always above the testicle, which is distinctly felt; and, in the more advanced stages of the disease, the testicle is found at the back part of it; whereas in the advanced stage of hydrocele of the tunica vaginalis, although some degree of hardness takes place where the tunic adheres to the testicle, yet, when the tumour is large, the testicle can never be distinctly felt. In the encysted hydrocele of the cord, the figure and size of the penis is not commonly so much altered as when the water is collected in the tunica vaginalis, in which the penis frequently recedes to a great extent.

When the water is contained in two distinct cells, as sometimes happens, the line of division is commonly evident by the tumour being at that part somewhat puckered or diminished in its diameter. A similar appearance also takes place when this variety of hydrocele is combined with a collection of serum in the tunica vaginalis; in which case, a line of separation may be observed where the upper extremity of the tunic terminates.

The comparatively free state of the upper part of the spermatic process, while the tumour is forming below; the gradual accumulation of the fluid, and, consequently, the gradual growth of the swelling; the indolent and unaltering state of it; its being incapable of reduction or return into the abdomen from the first; being always unaffected by coughing or sneezing; and the uninterrupted freedom of the alvine discharges, will distinguish it from intestinal hernia.

Encysted, as well as diffuse hydrocele, is frequent in infancy, but generally dissipates spontaneously, or readily yields to gentle friction with any stimulating or astringent application, as volatile liniment, camphorated spirits of wine, a solution of alum in water, or muriate of ammonia in vinegar. The late Dr. Monro recommended the application of cloths warmed with the fumes of burning benzoin, and Mr. Macgregor considered fumigations with cinnabar the most efficacious remedy. If the disease do not yield to these means, the point of a lancet will give discharge to the water, and will most frequently effect a cure.

There are two modes of operating for the cure of this disease. The one is to make an incision into the tumour; to introduce the finger into the sac, to ascertain that there is no communication with the abdomen; and then to introduce a small quantity of some slightly irritating substance. The other, and perhaps the most effectual, is that recommended by Mr. Hey:—The operator must grasp the integuments and spermatic cord in his left hand, at the posterior part of the tumour, till he makes it project, and draw the skin tight over it. He must then divide the skin and layers of fascia longitudinally, by repeated gentle strokes of the knife, till he arrives at the cyst, which is generally quite transparent. The projection of the cyst increases as the parts which cover it are divided; and when it is laid bare almost the whole of it is exposed. The cyst is then punctured with a lancet,

and all that appeared perfectly transparent, before the puncture, must be cut off with the knife or scissors; but the posterior part of the cyst must be left untouched. The integuments should be united by a suture, otherwise they are apt to retract and leave the cord projecting out of the wound. The wound may be covered with a warm poultice, and the patient confined to bed till the danger of inflammation is over.

CHAPTER III.

DISEASES OF THE TESTICLES.

The testicles are originally situated in the abdomen, immediately below the kidneys, on the fore part of the psoæ muscles, and are closely invested with the peritoneum. Between the sixth and seventh month of utero-gestation, they begin to move towards the ring, and, previous to birth, have generally reached the scrotum. The descent, however, in some instances, does not take place; occasionally one or both of the testes remaining within the abdomen during life, and sometimes one or both not passing beyond the groin.

When there is a retention of both testicles in the abdomen, it has usually been considered that the generative power of the individual is imperfect, because in this situation the organs are but imperfectly developed in structure, and consequently inadequate to their function—the elimination of semen. Such was the opinion of John Hunter, and likewise of other eminent men. There are cases on record, however, in which, although the testes have not descended, the persons have been capable not only of coition but of procreation. Mahon, in his "Medecine Legale," quotes a case in which a young man, distinguished for libertinism, was executed for some crime, and being consigned to the dissecting-room, the testes were found in the abdomen. He also speaks of a young man, in

whom the testes had not descended, and consequently a physician was consulted as to the propriety of the marriage; it was recommended and adopted, and a numerous family ensued.

It cannot be doubted, that when there is only one testis, the generative powers are not impaired. We see this daily illustrated in the example of men who have lost one testicle from disease: we remark it also in animals in which one only has descended, which are called *rigs* or *ridgils*, and are perfectly competent to procreation.

When the testes have descended as far as the groin they are fully subservient to the purposes of generation, and are liable to the same diseases which occur to these organs when in their natural situation.

Sect. I.—*Acute Inflammation of the Testicle.*

Orchitis, or inflammation of the testicle, to which the senseless term *hernia humoralis* has usually been applied, is a frequent disease. The causes are various; bruises or other external violence, irritations applied to contiguous parts, particularly those which affect the urethra; hence it is a very frequent consequence of gonorrhœa; and persons under cure for stricture, by means of the bougie, are particularly liable to be attacked by it; astringent injections sometimes prove an exciting cause. The disease is sometimes also dependent on a morbid condition of the membranous portion

of the urethra; and it may be caused by metastasis of other diseases, as gout, rheumatism, &c.

The first symptom is a fulness of the body of the testicle, which is extremely tender when handled; this soon increases to a hard swelling, accompanied with considerable pain in the part extending to the loins and bowels, with pyrexia. Nausea is almost a constant attendant, and occasionally vomiting takes place; there is a general redness of the scrotum; the spermatic cord is frequently affected, and particularly the vas deferens, which is thickened, and very tender and painful when touched. The epididymis is generally first affected, and is the hardest part.

The disease rarely affects both testicles simultaneously, though it sometimes happens that the inflammation changes from one to the other with great rapidity.

It having been observed in the inflammation of the testicle, which takes place during gonorrhœa, that the discharge from the urethra and pain in making water, have sometimes diminished, or altogether ceased on the coming on of the inflammation of the testicle, and have not returned until this began to subside, it has been supposed that a metastasis of the disease took place; but there does not appear to be any just ground for this conclusion: frequently neither of these symptoms are in the least diminished, and sometimes they are both considerably aggravated when the testicle swells; so that it clearly arises from an extension of the

inflammation to the vas deferens. Swelled testicle from gonorrhœa, it should be borne in mind, is not of a specific character, but merely of the same nature as any other irritation of the urethra would produce. It usually takes place suddenly, and is violent, but seldom suppurates. When arising from injuries inflicted on itself, the swelling is apt to be more permanent, and is prone to suppuration.

When the testicle swells it should be immediately suspended, and the patient confined to the horizontal position. The means best adapted for subduing inflammatory action should be quickly and actively employed. If the patient be young and robust, the swelling of the part considerable, with much febrile disturbance, and the pain in the loins very violent, blood should be freely taken from the arm, and the operation repeated according to the effect produced and the ability of the patient to bear it. Leeches, in considerable number, should also be applied to the scrotum, and the flow of blood promoted by warm fomentations and poultices. A much more convenient method of locally abstracting blood than by the application of leeches, is to open three or four of the veins of the scrotum with a lancet, the patient being erect; when, fomenting the part with warm water, or directing the patient to stand before a fire, in five or ten minutes as much blood may be obtained as is required, and the patient lying down the bleeding will cease.

Cupping on the loins is also an admirable mode of abstracting blood in these cases, and generally gives relief. The bowels should be briskly opened, and saline medicines with antimonials given at intervals. When there is much irritability of constitution, and the pain and inflammation continue in spite of this treatment, we must have recourse to calomel.

Much difference of opinion has arisen with respect to the propriety of employing warm or cold applications in cases of inflamed testis. In the first stage, where the pain is acute, with considerable tension of the part, warm emollient fomentations and poultices will be found to afford the greatest relief; but afterwards, when the tension has diminished and the inflammation is on the decline, cold sedative applications will be more useful, and of these the spirituous lotion is the best.

If notwithstanding the vigorous adoption of the foregoing measures suppuration should threaten, it will be our duty to promote it by the usual means; to give an early discharge to the matter, and afterwards treat the case as an ordinary abscess. The matter may be situated either in the cellular membrane of the scrotum, within the tunica vaginalis, or in the substance of the testicle. When the pulpy substance of the gland is affected, the tubuli seminiferi are liable to be discharged with the matter in the form of gray stringy particles.

Emetics, if given in the height of the inflammatory action, seldom fail to aggravate the symptoms, and frequently cause a termination by suppuration;

but if administered when the inflammation is on the decline, they will often be found useful in hastening the removal of the swelling, and sometimes they produce the almost immediate disappearance of the tumour; so great is the sympathy between the stomach and testis.

The epididymis seldom regains its pristine state, but continues more or less indurated; this, however, does not affect the general health, or interfere with the secretion of the semen. The remaining hardness of the epididymis, and the enlargement of the testicle itself, after inflammation is gone, often demand our attention. The mercurial liniment spread upon a piece of flannel, and worn in contact with the scrotum, will generally produce a diminution of the swelling; and the blue pill, given as an alterative in doses of five grains at night, contributes also greatly to this effect.

When the inflammation partakes of the arthritic character, in addition to the antiphlogistic remedies above mentioned, some preparation of colchicum may be given.

Sometimes, after the ulceration of the integuments takes place, there is little or no matter discharged, but a foul gleeting fungus protrudes, to the nature and treatment of which we now proceed.

Sect. II.—*Fungus of the Testicle.*

This disease is by no means of rare occurrence. Sometimes phlegmonous inflammation of the testicle terminates in a small abscess, which bursts, and from the ulcerated opening the fungus gra-

dually protrudes. In other cases, a painful swelling of the testicle, particularly characterized by its hardness, is the first symptom of the disease. After an uncertain period of time, the integuments, growing gradually thinner, ulcerate; and after a slight discharge of matter, a firm and generally insensible fungus protrudes; the surrounding integuments are much thickened and indurated, so that there appears a considerable mass of disease; the pain abates, and the swelling subsides considerably after the integuments have given way. In this state, the disorder appears very indolent; but if the fungus be destroyed by any means, the integuments come together, and a cicatrix is formed.

The fungus has its origin in the glandular substance of the testis itself, the coats of which are destroyed to a certain extent, and a protrusion of the tubuli seminiferi takes place through the aperture. Sometimes, however, a fungous growth arises only from the tunica albuginea, the testicle itself being sound.

In many instances, the disease seems to be caused or accompanied by a morbid condition of the lining membrane of the urethra.

The state of the testicle will serve to distinguish this disease from those fungi of a malignant character which frequently are situated on this part, and usually are the result of cancer or fungus hæmatodes of this organ, and wherein early extirpation is the only treatment which offers a chance of relief.

It is to be remembered, in the treatment of this affection, that the fungus has no character of malignity attached to it, and consequently castration is never requisite, as regards the disease simply. With a view of bringing the case to a speedy termination, when the structure is so far destroyed that the secerning powers of the organ are lost, we may recommend complete extirpation; but in a majority of cases, by early attention, a milder treatment will suffice.

When the disease has clearly originated in consequence of irritation communicated to the testicle by a morbid state of the urethra, the swelling will frequently subside, the fungus shrink, and a complete cure will be effected, on the removal of the cause by the means recommended in treating of disorders of the urinary passage. It is probable, indeed, that in other cases a cure might be accomplished by the unaided efforts of nature; the disease, however, is of so indolent a character that a spontaneous cure would prove a tedious process.

The fungus may be removed with the knife, by ligature, or by escharotics; and likewise it may be got rid of by absorption under the use of pressure constantly applied. If the projection be large, it is perhaps the best practice to cut off the fungus, and having pared the hardened edges of the integuments, to bring them as closely in apposition as possible. The treatment by ligature is tedious. Of the escharotic applications, the nitrate of silver is preferable; it should be applied freely, dry lint should then be put over the part, and firm pressure

made use of by the application of adhesive plaster. Under the conjoined influence of the caustic which effects the removal of the outer and less sensible part by sloughing, and the process of absorption excited by the pressure, the disease is more quickly removed than if either of the means were used singly. I have witnessed the application of a solution of arsenic in two instances: in one case very unpleasant symptoms arose from the absorption of this active poison, and in the other case there was less decided advantage than results from the lunar caustic, although no untoward constitutional derangement was produced.

If after the removal of a fungus, the remaining portion of the testicle continue indurated and enlarged, it is advisable to have recourse to mercurial frictions, under the use of which, absorption of the interstitial deposit will take place.

Sect. III.—*Hydatids of the Testicle.*

The formation of hydatids or cysts within the testicle occurs to persons in the middle age of life. It commences at the extremity of the epididymis, where it joins the testicle; there is an enlargement of the part, which extends through the epididymis towards the vas deferens, and from the epididymis to the body of the testicle. It is never attended with pain, unless it acquires a very considerable magnitude. The spermatic veins are larger than usual, and the cord is a little varicose, but not hard: the appearance of the swelling very

much resembles that of hydrocele. The disease is confined entirely to the testicle and epididymis, and never extends to the spermatic cord or other part of the body.

On dissection, the testicle is found filled with small cysts, varying in size from a pin's head to a marble; these cysts consist of cellular tissue, and not of glandular structure. A great many of these hydatids contain water only; some, water tinged with a yellow serum; and others, opake mucus, or a kind of caseous substance. The testicle is entirely obliterated, every portion of its seminiferous tubes being absorbed by the pressure of the hydatids.

The disease is entirely local, and free from danger. The constitution of the patient is entirely unaffected by this complaint.

The operation of castration is sometimes required for this disease, where the tumour acquires a large size, not on account of any pain which it excites, or from any dread of the constitution becoming affected by its continuance, but entirely on account of its magnitude, which renders the patient an unsightly object.

Sect. IV.—*Irritable Testicle.*

The testicles are subject to a disease in which they are so exceedingly sensitive that the patient cannot even bear to walk, as the slightest pressure

causes excruciating pain, which will last for hours. This pain extends around the pubes, rendering that part tender, and shoots up the spermatic cord to the loins, and also down the thigh.

There is in these cases little or no alteration in the size or appearance of the affected testicle, or, if there be any difference, it is the smaller of the two. The patient's general health is unimpaired; but the long-continued pain incapacitates him from following any occupation, or even from using the slightest exertion.

This is a very formidable disease. It may sometimes be temporarily relieved by giving alterative doses of mercurials combined with hyoscyamus or cicuta; and, occasionally, it will cease spontaneously after a length of time. Generally, however, it returns, and continues for months or years, and resists all the remedial means which we can employ, so as to require the removal of the affected testicle before relief can be obtained. Sir Astley Cooper has been thrice under the necessity of performing castration under these circumstances. The degree of suffering to which the patient is exposed will in many cases induce him anxiously to urge the performance of the operation.

A very ingenious mode of treating these cases, and which may supersede the necessity of the severe operation of castration, has been suggested by my friend, Mr. Wardrop, and like every other practical proposal which has emanated from this distinguished surgeon is founded on sound patho-

logical views: it is that of cutting down upon the spermatic cord, and dividing the nerves which go to the testicle.

Sect. V.—*Neuralgia of the Testicle.*

This distressing affection is characterized by paroxysms of most excruciating pain, the attacks of which commonly take place instantaneously, resembling very much in this respect the electrical shock; and most generally it is similarly transitory, coming on in repeated fits during the continuance of an entire paroxysm.

The only author that I know of who has mentioned this morbid condition of the testicle is Dr. Macculloch*, who informs us that he had known, personally, but two cases; but suspects that it is of frequent occurrence, and has been mistaken for incipient scirrhus. In one of the cases to which he alludes, this error he states was in fact committed, and after a long period of suffering the gland was extirpated in the usual manner. It was discovered to be sound, and, as generally happens when the division of the nerve has been resorted to in neuralgia, it returned in the cord. This case became known to him only after this last event, but as the patient was opulent, there had been no want of advice respecting the disease.

The other case was under Dr. Macculloch's own care, and was cured by arsenic, while its nature was rendered perfectly evident by the slight paroxysm

* An Essay on the Remittent and Intermittent Diseases, &c. by John Macculloch, M. D., F. R. S.

of intermittent which attended it, and by its having alternated with another neuralgia. As might be supposed, the pain in this case was extremely violent; and it was described by the patient as rendering him entirely blind to the surrounding objects; as if the whole world had disappeared from his sight, and all recollection was obliterated.

Sect. VI.—*Atrophy of the Testicle.*

One or even both of the testicles may gradually diminish in size, or even become altogether absorbed. The causes which produce this state are in some instances mechanical, as the pressure of an ill-made truss on the spermatic cord. The same effect may also be produced in irreducible scrotal hernia, by the continued pressure of the intestine against the testicle; or, in hydrocele or hæmatocele, from the pressure of the effused serum or blood.

The disease sometimes succeeds to inflammation of the testicle, whether this has arisen spontaneously, or from injury, or is caused by irritation in the urethra. The testicle, when the inflammation is on the decline, begins to diminish as in ordinary cases, yet does not stop when the gland is reduced to its natural size, but continues until it entirely disappears.

When this effect takes place it is generally in young persons under the age of twenty.—If a person of this age contract a gonorrhœa, it is occasionally succeeded by a wasting of one or both testicles. This effect is not the result of gonor-

rhœa alone; any cause producing inflammation of the testicle in very young persons will now and then lead to a similar misfortune. It sometimes follows the long-continued application of topical astringents used for the cure of the varicose dilatation of the spermatic veins.

In all these instances the cause of the disappearance of the testicles is evident; but sometimes these glands will become absorbed without any preceding disease or apparent cause.

Baron Larrey informs us that a great many of the French soldiers, when in Egypt and after their return to France, were affected with an almost total disappearance of the testicles, without any cause of a venereal kind. The testicles first lost their sensibility, then became soft, and gradually diminished in size until they appeared quite dried up. This wasting proceeded so insensibly, that the individual was not aware of it until the testicle was reduced to a very small size, and the spermatic cord had equally participated in the disease. Most commonly only one gland was affected, but sometimes both, in which case the individual lost the masculine character, and acquired an effeminate appearance; at the same time losing all venereal desire. The beard became thin, the digestion was impaired, and the mental faculties deranged. The inferior extremities wasted, so that many soldiers were under the necessity of being invalided in consequence.

The occurrence of this wasting of the testicles amongst the French troops is a singular circum-

stance; for the English soldiers, whom we must suppose were exposed to the same causes, do not appear to have suffered in a similar manner: at least there is no account on record that I know of, of their having been thus affected.

The Baron attributes the disease to the intense heat of the Egyptian climate, to the fatigues and deprivations of war, but above all to the use of a spirit made from dates, into which the natives are in the habit of putting several species of the solanum and also capsicums, for the purpose of increasing its strength and rendering it more agreeable to the palate.

The same affection sometimes succeeds to deep wounds of the neck, with fracture of the inferior part of the occipital bone.

We know of no means by which the progress of this disease can be arrested. Mercury, cicuta, the cold bath, and electricity have been severally recommended and adopted, but without success. Mr. Hunter thought that freely employing the organs, so as to render them active, before the whole of the glandular structure had become destroyed, was a likely method of preventing their entire decay.

Sect. VII.—*Simple Chronic Enlargement of the Testicle.*

This is an affection of more frequent occurrence than any other disease of the testicle. It appears

to be the result of a slow and almost imperceptible form of inflammation, as a consequence of which a deposit takes place in the interstitial substance of the testicle, until the whole mass becomes solidified. The gland, upon handling, evinces no particular tenderness; it is hard and inelastic, and possesses an equality of surface; the natural line of demarcation between the body of the testis and the epididymis is destroyed, the two parts being as it were blended.

Of the remote causes of this affection it is difficult to speak; from its having been frequently observed to take place during the progress of syphilis, and from the fact of its yielding to mercury, it has been supposed to be of a venereal nature. Certain it is, however, that the disease is met with in persons perfectly free from all suspicion of syphilis, whilst the cure by mercury is referrible to the absorbent power excited by this medicine, under which the insterstitial deposit that constitutes the enlargement is removed.

In the treatment, strict attention to the recumbent posture is to be observed, leeches freely and repeatedly applied to the part, and evaporating lotions used. Provided there be no counter-indication in the state of the constitution, the blue pill, or calomel combined with opium, must be given until the mouth become sensibly affected; and it is advisable to keep up the action for some time. As soon as ptyalism is induced, it will be found that the enlargement of the gland will begin to diminish, and will continue gradually, until the disease is

removed and the testicle assume its natural consistence and feel.

In the case of a delicate and irritable constitution, where the use of mercury, so as decidedly to affect the system, is to be dreaded, an alterative plan, with attention to the state of the general health, and the occasional application of leeches, will generally effect a cure. The camphorated mercurial ointment applied to the part is useful.

The late Mr. Ramsden gave the name of *sclerocele* to a chronic enlargement and induration of the testicle, which he supposed arose from latent irritation within the urethra, free from malignancy, and, as he asserted, curable by removing the morbid irritability of the urethra. From his description I have principally taken the following history of this complaint.

The first change which irritation within the urethra produces on the testicle is an enlargement and induration of the epididymis, very similar to that which succeeds to common inflammation of the testicle. Sometimes, however, the body of the gland is the first part which becomes hardened, and at others the induration will commence in the spermatic cord. As the induration advances it acquires a peculiar callosity and cragginess, and the vas deferens, epididymis, testicle, and spermatic cord, all partaking of the disorder, eventually become blended in one hardened irregular mass, not differing in outward character from that state which has been denominated scirrhus.

During the progress of this morbid alteration in the gland, an effusion of serum will sometimes take place into the tunica vaginalis, or beneath the coverings of the spermatic cord; and this is a consideration of great practical importance, since fluid, when tightly constricted, will oftentimes feel equally hard and resistent as the indurated gland or cord, and, therefore, add considerably to the obscurity of the case on examination. Fluid when tightly bound down upon an irritable testicle, is also capable of producing general symptoms in the system, which might seriously mislead an inexperienced practitioner.

When a testicle has reached this state of disease, the progress of its further derangement becomes uncertain; but the most usual course is a languid suppurative inflammation at the lower part of the scrotum, with the projection of an irregular granulating fungus through this aperture of the abscess. In some few instances, on account of the constriction of fluid, the sclerocele will become painful at a very early period; but otherwise it excites no inconvenience, and is unnoticed until it acquires a considerable bulk. Sometimes, however, in persons of very irritable constitutions, this disease will advance with more rapidity, and this will be found to be rather favourable to the cure than otherwise, provided the testicle has not taken on any diseased action of its own.

In those cases in which the seat of irritation within the urethra is acutely sensible, and in which the enlargement of the testicle has been rapid, that

case is much more obedient to the treatment by the bougie than in those in which the source of irritation is less sensible, and in which the gland has been more slowly habituated to its influence. In the former cases also, the removal of the source of irritation will be always sufficient alone to perfect the recovery of the testicle; but, in the latter, it will frequently be requisite, after the cause has been removed from the urethra, to have recourse to local mercurial frictions, for the purpose of dispersing some remaining point of induration in the gland.

The formation of matter in this state of the testicle, or the protrusion of a fungus from the lower part of the scrotum (a very common occurrence), have been generally considered as authorizing the extirpation of the gland, but it is by no means a necessary measure; the treatment of the urethra being in most instances competent to the preservation of the remaining portion, provided it be resorted to when the patient is not suffering under general indisposition, and before the neighbouring parts have taken on a diseased action, in consequence of the long continuance of the irritation.

This affection of the testicle has been generally confounded with scirrhus, but it is essentially different. Enlargement of the gland, resistent hardness, and cragginess of surface, with an occasional effusion of serum within the vaginal coat, are common to both diseases; and, excepting the scirrhus is generally accompanied with derangement of

system, and is also commonly attended with darting pains before obvious inflammation takes place, there is no character by which it may be with certainty distinguished in the first instance from sclerocele. The induration in scirrhus is seated in the glandular structure; but when the testicle becomes indurated and enlarged, as in sclerocele, from exterior causes of excitement, the morbid symptoms are in the first instance entirely confined to the intervening cellular substance. Hence, probably, it is, that scirrhus is attended, at an early period, with a peculiar sallowness of countenance, and other symptoms of derangement in the system; while the common indurated testicle will exist, and frequently advance to a great extent, without interfering with the general health of the patient.

Since these two diseases are in their symptoms so similar, and yet so different in their natures and results, it would be a great desideratum to establish such distinctions as will hold good in every instance.

Whenever, in a testicle presenting these characters, in spite of a proper attention to the urethra, and of a general or local trial of mercury judiciously used, the induration and cragginess continue to extend, and especially if severe darting pains in the direction of the loins come on before the skin appears reddened or inflamed, the disease may be viewed as scirrhus.

This disease may attack the testicle when situated in the groin, and will in this case yield to the same treatment.

CASE 1.—*Sclerocele of the Testicle from latent Irritation within the Urethra.*

A gentleman, thirty years of age, of nervous, irritable habit, who had indulged with women and in the luxuries of the table to an imprudent excess, had an enlargement and induration of his left testicle. The body of the gland was increased to three times its natural size, and very unequal on its surface; the epididymis was also enlarged and peculiarly craggy and resistent. This state of the testicle had been gradually coming on for several months, yet occasioned no pain or uneasiness. The spermatic cord was in a healthy state and of a natural size. A bougie, being introduced, was, on its reaching the bulb, firmly grasped by a strong spasm; but, on being set at liberty, it discovered a state of extreme tenderness throughout the whole of the membranous part of the canal. The withdrawing the instrument was followed by a few drops of blood. As this source of excitement in the urethra became less sensible to the subsequent applications of the bougie, the hardness and unnatural bulk of the testicle gradually subsided, and, after a few weeks, was entirely reduced.

CASE 2.—*Sclerocele of the Testicle in the Groin.*

A negro had a tumour in the right groin which had been increasing in size for some time, and was very troublesome. When he stooped or raised his leg in going up stairs he suffered great pain, which had on some occasions caused sickness and fainting.

The tumour was rugged and resistent, and very moveable. Only the left testicle being discovered in the scrotum, and the man being told that the swelling in the groin was probably the other testicle in a diseased state, said it was very likely, for the stone on that side had always remained close up against the belly, even since he was a child.

The urethra was found in a very irritable and diseased state; but, after the bougie had been introduced a few times, the tumour in the groin became much softer and less unequal on its surface; and, before the expiration of three weeks, by which time the bougie passed freely into the bladder without pain, the morbid feel and character of the tumour was exchanged for that of a healthy and perfect testicle.

Fungous Sclerocele.

A gentleman, about forty, had a fungous excrescence of very malignant appearance, and discharging a bloody sanies, projecting from the lower part of the scrotum, accompanied with an enlargement and craggy induration of the testicle. The spermatic cord was not thickened or enlarged. About twelve months before, during a fever, the body of the testicle enlarged without much pain, and became particularly craggy, the scrotum gradually inflamed, and suppuration at length followed. When the abscess broke, about two table spoonfuls of matter were discharged, and a fungus was soon after thrown out, which had been twice removed, once by caustic, and the second time by ligature,

but was after each removal reproduced. This complaint was in a general way unattended with pain; but, if excess in exercise or living happened to take place, the testicle then became acutely tender, with painful sensations in the course of the spermatic vessels towards the loins.

The first introduction of the bougie discovered a point of extreme sensibility near the bulb of the urethra, and, indeed, a degree of spasm in that part which, for a few seconds, impeded its progress into the bladder. A considerable quantity of blood was lost from the urethra on withdrawing the bougie; but this did not again take place during the further treatment of the case. By the daily introduction of the bougie for a few weeks, the unhealthy point in the urethra gradually diminished in sensibility, and was at length completely removed; the testicle also resumed its natural size and softness; but the fungous excrescence did not diminish though it had a much less malignant appearance, and had ceased to discharge the bloody sanies. Under these circumstances it was removed by ligature. The ulceration soon healed, and all marks of disease disappeared; so that this patient was, in about two months, perfectly cured of a disease, for the removal of which he had been told it would be necessary to submit to the operation of castration.

I have purposely been diffuse in the foregoing statement of the opinions held by Mr. Ramsden,

because at the present time the practice which he inculcates appears to be almost lost sight of. The observation of Mr. S. Cooper, that, from the circumstance of the practice not being pursued, it may be inferred to be of no value, requires some qualification. It may be, and indeed was so, that Mr. Ramsden having discovered that which, in fact, is but an *occasional* cause of chronic enlargement of the testicle, was led, from partiality to his own opinions, to see the same cause in every instance. Reasoning, *à priori*, would lead us to the admission of the truth, that disease of the portion of the urethra at which the ducts of the testicle terminate, would, from continuity of structure, affect the organ itself; the case of acute inflammation of that gland supervening upon gonorrhœa offers a striking example of the manner in which disease is propagated along the seminal canals, ending in the urethra, to the testes. In respect to the treatment laid down by Mr. Ramsden, a few observations are necessary. If the testicle has become enlarged, in consequence of a deposit which results from chronic inflammation, whether the said inflammation has extended from the urethra, or whether it commenced in the testicle itself, is but of little import as regards the immediate object of cure, which is to effect an absorption of the lymph. In cases of slight enlargement of the testicle, accompanied with tenderness, and coupled with an irritable condition of the prostatic portion of the urethra, much benefit will be derived from paying attention to the latter sym-

ptom, on the removal of which, the disease in the testicle will often spontaneously subside. But, where the enlargement is considerable—where the disease has spent itself, although the urethra may still remain affected, a removal of this affection will not cure the testicle.

Sect. VIII. — *Scrofulous Enlargement of the Testicle.*

In this disease the testicle may increase to a very large size, but in a great measure it retains its outward form; the progress of the enlargement is slow, and attended with but little pain; there is no affection of the spermatic cord; and the tumour is characterized by a soft, pulpy, relaxed feel, without elasticity.

Children and adults are equally liable to this affection. It occurs in those children who have light or red hair, a delicate skin, with a florid complexion, and such other general appearances as are supposed to mark a disposition to scrofula, and especially in those who show any tendency to mesenteric obstructions. It takes place in adults who are naturally of a weakly, delicate constitution, and whose system has been weakened, and general health impaired by a long residence in hot climates, or by an irregular course of life.

In children it is no unusual occurrence to find, even before the testicle has acquired any considerable degree of fulness of size, the skin of the scrotum to give way, the testicle repeatedly to slough, and the parts afterwards to cicatrize without much difficulty, and continue through life without occa-

sioning further inconvenience. In adults, however, the skin of the scrotum seldom gives way, so as to expose the body of the testicle, until a very considerable increase of bulk has taken place; yet such enlargement is not attended with pain or affection of the spermatic cord, neither is there any derangement of health farther than seems to arise from general debility. In such an enlarged state of the gland, the skin of the scrotum will redden and break sometimes in several places, and will expose different parts of the substance of the testicle in a state of slough. The progress of the sloughing, however, is commonly very slow, and only takes place at intervals; so that a patient will carry a diseased testicle of this description, from time to time throwing off sloughs, for many years, without the mischief extending up the cord, without much injury to the general health, and without being incapable of the common avocations of life.

A short time before the skin is discoloured, the testicle gradually loses its great characteristic feature, viz. the soft, pulpy feel, and acquires a degree of general hardness, very much resembling that state of the testicle which has been called venereal, or the simple chronic enlargement. Persons seldom seek relief until the skin of the scrotum begins to redden, at which time such an alteration has taken place in the structure of the gland as, for the most part, renders sloughing unavoidable. A scrofulous affection will sometimes take place in both testicles at the same time, in some instances accompanied with other glandular derangements, but more frequently without them.

The foregoing description will be sufficient to prevent the scrofulous testicle from being confounded with the other enlargements of this gland. The most distinguishing marks between a scrofulous and scirrhous testicle are, the more regular shape and feel of the first, the absence of the stony hardness, severe lancinating pains shooting up the cord, and swelling in the neighbouring absorbent glands, even when it has become an open sore; whereas when scirrhus has passed into the stage of open cancer, the glands are sure to participate in the disease.

The local treatment of the scrofulous testicle should be the same as is applicable to any other gland in a sloughing state. As regards the constitutional treatment, our object should be to maintain a correct state of the bowels, to invigorate the digestive organs, to support the patient's strength by proper tonics, and, if possible, by a removal to the sea-coast. Indeed, both the local and general measures should be such as would be considered most advisable in any other scrofulous affection.

When the sloughing ceases, leaving a portion of the testicle very much protruded, and thus preventing the cicatrization of the wound, or when the cure, from other circumstances, is very likely to be long procrastinated, the patient will act wisely in submitting to the removal of the diseased part.

The principle, however, on which a scrofulous testicle ought to be removed, differs essentially from that which would guide a surgeon in advising

the extirpation of a scirrhus or sarcocele, because, in parting with a scrofulous testicle, the patient gets rid of a disease extremely troublesome, which keeps him in a state of great weakness and under continual anxiety, although without endangering his life.

Sect. IX.—*Hydro-Sarcocele.*

Enlargements of the testicle are frequently accompanied with collections of watery fluid within the tunica vaginalis, to which the term hydro-sarcocele is applied.

The distinctions which appertain to diseases of the testicle when unaccompanied by watery fluid within the tunica vaginalis are equally referable to these same diseases when water is present with them in the sacculus. When the quantity of fluid is small, the diseased gland may be distinctly felt, and the extent of its enlargement correctly ascertained by manual examination. At other times, the quantity of fluid is considerable, and totally conceals the diseased gland under all the external appearances of true hydrocele, so that occasionally on letting out the water of a supposed hydrocele, with an intention of performing the radical cure, the testicle itself is discovered to be diseased, when no morbid affection had been previously suspected.

When a testicle, after the evacuation of the fluid from a supposed hydrocele, is discovered to be enlarged and hardened, it will be proper to have re-

course to the treatment which has been recommended for the same affection, unconnected with serous effusion.

A similar treatment should be also resorted to in those cases in which the enlargement of the testicle can be recognised by examination through the fluid in the tunica vaginalis, even before the evacuation of the fluid. By this practice the necessity of evacuating the water will in many instances be superseded, and the testicle will not only be restored to its healthy state, but the undue accumulation of water will be removed by the natural powers from the tunica vaginalis, or, if the fluid should remain after the reduction of the enlarged gland, simply tapping the tunica vaginalis will prove sufficient to the radical cure of the remaining hydrocele.

Sect. X.—*Fungus Hæmatodes of the Testicle.*

This disease is much more common than scirrhus, and demands our particular attention, both on account of its malignant character and its liability to be mistaken. It mostly occurs in persons under the age of thirty, and sometimes in very young children of three or four years of age.

It begins in the body of the testicle; in a very short time the epididymis becomes affected; and as the swelling of the gland increases, the tumour retains an oval or globular form, and it becomes difficult, if not impossible, to distinguish the body of the testicle and epididymis from each other. Next the spermatic cord becomes affected, and in

the course of a short time a tumour forms in the loins.

The disease at first is unattended with pain, but when the thickening of the spermatic cord and the tumour in the loins become considerable, the patient suffers much. In respect to its size it differs from scirrhus, in which the swelling never attains any great size; but the fungoid swelling of the testicle increases sometimes to the weight of several pounds, though there is no inequality or hardness in the gland.

When the testicle has attained a considerable bulk, it becomes remarkable for its softness and elasticity, communicating the sensation of a fluid being contained in it. So deceptive, indeed, is the feel of the tumour, that on many occasions it has been punctured on the supposition of its being a hydrocèle, when only a small quantity of blood has followed. This mistake should, if possible, be avoided, as it not only reflects on the judgement of the surgeon, but never fails to accelerate the progress of the complaint.

Fungus hæmatodes may be distinguished from hydrocele in the following manner:—The swelling is flattened on the sides and round on the fore part; whereas in hydrocele it is pyriform. If any part of the tumour be squeezed, the patient will complain of pain arising from the compression of the testicle, which he will not do in hydrocele, unless the posterior part be pressed upon. The fungoid tumour rather yields to the pressure of the finger,

than fluctuates from one side to the other as in hydrocele. Neither has the tumour a similar progress. In hydrocele, the water begins to collect at the bottom of the scrotum, and the testicle may generally be distinguished at the posterior part, until the tumour has attained a very large size; whereas in fungus hæmatodes, the disease commences in the body of the testicle, or in the epididymis, and the whole gland gradually enlarges. The tumour in hydrocele is accurately circumscribed towards the abdominal ring; but in fungus hæmatodes there is a gradual swelling or fulness extending from the testicle up the spermatic cord. The want of transparency is not a certain criterion.

Fungus hæmatodes, when large, sometimes becomes hard at some points and soft at others, and the swelling appears as if about to break. It is not common, however, for the scrotum to ulcerate, and a fungus to protrude, though it may do so; in which case hæmorrhagies from the slightest causes take place, and greatly tend to accelerate the patient's fate.

In the more advanced stage, the complaint is attended with severe pains darting up the spermatic cord to the loins, attended with fever of the hectic kind. The disease is not confined to the testicle, but often simultaneously affects other parts of the body in a great variety of situations. The glands in one or both groins, and in various situations within the abdomen, become converted into the same pulpy or cerebral-like substance as the testicle. The disease is frequently at the same time

found in one or more of the viscera, as the liver, kidney, or brain.

The diseased part should be removed the moment its real nature is discovered; and if the patient be free from other complaints, and the operation be performed at the very earliest period of the disease, there may be a hope of success; but, in a great majority of cases, the disease will return and prove fatal, for there are in general, as has been before stated, tubercles of a similar character in other parts of the body, which will destroy the patient, notwithstanding all that can be done by alterative medicines after the operation.

On examination of the testicle after its removal from the body, it is found converted into a soft, pulpy matter, not unlike the medullary substance of the brain; its natural texture being entirely destroyed. It is often of a brownish or red appearance.

The testicle is sometimes much enlarged, and converted into a mass of cartilage, and occasionally into bone.—Dr. Baillie mentions having seen a testicle with a small firm cyst adhering to it, which contained a vena medinensis.

It is not unusual to meet with cases in which two or more of the preceding affections are combined in the same testicle, and it becomes impossible to affix to the disease any definite appellation; nor is a name here of much moment, since there will always be sufficient indications to warrant having recourse to castration.

Sect. XI.—*Scirrhus of the Testicle.*

True scirrhus of the testicle is an extremely rare disease. Sir A. Cooper says, "I have seen but very few instances of true scirrhus of this gland. Many testicles have been removed under the supposition of their being scirrhous, which might have been saved."

The disease generally commences as a simple enlargement and induration of the body of the testicle, without much pain or any discolouration of the part. As the tumour becomes larger the hardness increases, and the testicle feels like a marble body lodged within the scrotum. The surface, for some time, remains smooth, and, if the constitution be otherwise sound, the disease will sometimes remain stationary for years. In less favourable cases, the patient is attacked with slight pains through the tumour, as well as in the back, when the testicle is not suspended; the size of the tumour augments sometimes very rapidly; the surface becomes knotty and unequal; and severe lancinating pains shoot through its substance, and up the spermatic cord to the loins.

In true scirrhus the testicle does not enlarge to any considerable size. The disease, however, continuing to increase, the scrotum bursts, producing a deep, foul ulcer, with thickened and ragged edges, and having a thin, bloody, and offensive discharge.

Sometimes an extravasation of serum takes place in the tunica vaginalis, constituting what has been

termed a hydro-sarcocele. In this case, the fluid filling up the inequalities of the testicle prevents the irregularities of its surface from being felt, thus obscuring the diagnosis; or, in other cases, matter imperfectly forms in different parts of the tumour.

The epididymis is the next seat of the disease; that portion being first attacked which communicates with the vas deferens. The spermatic cord next becomes affected; in some instances, indeed, this affection of the cord takes place soon after the commencement, but more frequently not until the disease has made considerable progress, and generally not until collections of matter have been formed. The disease passing into the abdomen, the lymphatic glands in the loins become affected, and soon afterwards the thigh of that side becomes enlarged and œdematous. The patient's health now suffers; his countenance becomes pale and sallow, and frequently of a leaden hue; there is loss of appetite and flesh, and he becomes worn out with constant irritation and pain.

In the beginning, when the disease is confined to the testicle, the glands in the groin do not enlarge, because the absorbent vessels of the testicle, in passing into the abdomen to terminate in the lumbar glands, do not form any communication with the glands in the groin; but when the scrotum participates in the disease, the absorbent glands in the groin speedily enlarge.

It attacks persons at an advanced period of life, seldom occurring before the fiftieth year. The stony hardness, rugged inequality of surface, and

acute lancinating pains, form the distinguishing characters of scirrhus.

The extirpation of the diseased part is the only remedy which offers a chance of relief, and the earlier it is effected the greater will be the probability of a cure. The operation, however, is generally very unsuccessful; for it rarely happens that the disease does not return after the removal of the testicle. If the spermatic cord has not become enlarged by giving alterative medicines for a length of time, we sometimes succeed in preventing the return of the disease after the operation. When the spermatic cord is diseased, the operation ought not to be recommended, as the disease will be sure to return, and still more certainly if the integuments of the scrotum are affected, and the disease has arrived at the stage of open cancer.

The spermatic cord, however, may become enlarged merely from the weight of the tumour, or it may be so from a varicose dilatation of its veins, or from a collection of fluid within its investing membrane; but these are free from any malignant tendency, and do not contra-indicate the performance of an operation. If, however, it be unequally hard, knotty, and painful to the touch, it is unfavourable, unless there be sufficient space above the diseased part to allow the application of a ligature. Should the diseased state extend up to the abdominal ring, and the parts of which the spermatic cord consists

be undistinguishably blended together and adherent to the neighbouring parts, the operation ought not to be recommended, particularly if, in addition to the above, there should be disease in any of the abdominal viscera.

It will be necessary, in forming our opinion on the propriety of an operation, to take into consideration the state of general health and of the local disease. A pale, sallow complexion, in those who used to look otherwise; a wan countenance, and loss of appetite and flesh, without any acute disorder; a fever of the hectic kind, and frequent pains in the loins and abdomen, would lead us to suspect some latent disease, which would contra-indicate the propriety of the operation.

Yet even in the most unfavourable cases, and where a cure cannot be expected, some months, or even years of comparative comfort may be given to a patient by the removal of the testicle, who may, the chances of the return of the disease having been explained, choose to submit to the operation, as is exemplified by the following case related by the late Mr. Wilson.

He met in consultation with Mr. Cline on the case of a respectable tradesman. Both of the testicles, and greater part of the scrotum, were in a state of cancerous ulceration, and the cord much thickened, so that they could not propose the operation for extirpating the diseased parts. Soothing means and a palliative treatment were recommended. The patient, however, from the excessive pain which

he suffered, was most importunate to have the testicles removed. Having explained to him and his relations the small chances there were of the wounds healing, Mr. Wilson at length complied with his request, and extirpated the diseased parts. The wounds cicatrized in little more than a month, and no recurrence of the disease, in the space of two years that he survived the operation, took place. His health for some time rapidly amended, but he took to drinking spirits, became dropsical, and died. His body was not permitted to be examined; but Mr. Wilson having tapped him two or three times, felt, on the evacuation of the fluid, a mass of hard substance in the loins, which he considered to be indurated absorbent glands.

Mr. Sharpe inculcates, that no scirrhus is so trivial but the operation may have a fatal consequence, and no cancer so malignant, but the event may be successful. On these accounts, castration is never to be recommended without an urgent motive, nor to be despaired of though in the last extremity of the disease.

Sometimes this disease affects the testicles when they are situated in the groin; but this circumstance does not offer any obstacle to their removal, should it be deemed otherwise expedient.

Mr. Pott states that he has seen the cord cancerous when the testicle has been free from disease.

The enlarged and hardened state of the epididymis, subsequent on hernia humoralis, and that connected with simple chronic enlargement of the testicle, never terminate in scirrhus; but scirrhus

does sometimes make its first attack on the epididymis before it affects the testicle.

Sect. XII.—*Operation of Castration.*

This operation is exceedingly simple. If the testicle be of small dimensions, the operator, grasping the tumour in his left hand, so as to stretch the integuments, makes a longitudinal incision extending from the abdominal ring to the lower extremity of the scrotum.

But if the tumour be of great magnitude, or the skin of the scrotum diseased, or if there be a fungous protrusion from the testicle, two elliptical incisions must be made, so as to include within them all that portion of skin which is diseased or superfluous.

The spermatic cord is next to be laid bare and clearly detached from the surrounding fat and cellular membrane; and if it is to be divided at some distance from the ring, it will be sufficient that the operator hold it firmly between the forefinger and thumb of his left hand; but if the division is to be made close to the abdominal ring, it will then be advisable to pass a needle and ligature through the cord previous to dividing it. The arteries of the cord, which are sometimes numerous, are to be secured by the forceps or tenaculum, and also those of the scrotum; and the operation is to be finished by separating the testicle, by dividing the loose cellular membrane which connects it with the scrotum.

Should, by any accident, the cord retract within

the inguinal canal, before the arteries are secured, this must be slit up as far as the origin of the cremaster muscle, to enable us to regain the cord.

The edges of the wound are to be kept in apposition by a few sutures, supported by adhesive plaster, compresses, and bandage.

Sometimes this operation is followed by severe inflammation of the peritoneum, retention of urine, convulsions, and tetanus. These, should they arise, must be combated by their appropriate remedies.

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